

Reaching for Rigor.

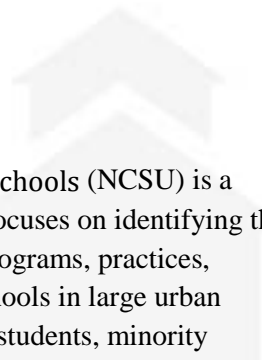
Identifying Practices of Effective High Schools.

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Research Report

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The National Center on Scaling Up Effective Schools (NCSU) is a national research and development center that focuses on identifying the combination of essential components and the programs, practices, processes, and policies that make some high schools in large urban districts particularly effective with low-income students, minority students, and English language learners. The Center's goal is to develop, implement, and test new processes that other districts will be able to use to scale up effective practices within the context of their own goals and unique circumstances. Led by Vanderbilt University's Peabody College, our partners include The University of North Carolina at Chapel Hill, Florida State University, the University of Wisconsin-Madison, Georgia State University, and the Education Development Center.

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Executive Summary.

What distinguishes high schools that “beat the odds” for students from traditionally lower-performing groups from schools that struggle to improve the achievement and graduation rates of these student populations? What types of programs, practices, and processes support better than expected outcomes for students at risk of failure? How can districts identify, adapt, and scale up these practices to their less effective high schools?

These are the questions that the National Center on Scaling Up Effective Schools (NCSU) is addressing. NCSU—a collaborative partnership between research universities, developers, and two large urban districts—is a five-year project funded by the Institute of Education Sciences in the U.S. Department of Education. NCSU focuses on identifying the combination of essential components and the programs, practices, processes, and policies that explain why some high schools in large urban districts are particularly effective at serving low-income students, minority students, and English language learners. We then work collaboratively with the districts to develop processes to share and implement these practices in less effective high schools.

This report presents findings from the first phase of this work—the identification of practices that distinguish higher and lower value-added high schools in one of our partner districts, the Fort Worth Independent School District (FWISD). The findings from this report will be used to define a “design challenge” that will guide a collaborative design process that will develop an innovation to be implemented in the district.

Research Design

This data herein come from a comparative case study of four high schools in FWISD during the 2011-2012 school year. The study was designed to identify the programs, policies, and practices that effective schools in FWISD used to coordinate successful outcomes for students. The four schools were selected based on school-level, value-added student achievement measures. The value-added measures of achievement were created in reading, mathematics, and science for all students in the school, and for subgroups of students by race/ethnicity, free and reduced lunch eligibility status, and English language learner (ELL) status. In short, two schools were selected with relatively higher value-added results and two with relatively lower value-added results. In each school, we conducted approximately:

- 9 focus groups (with students, teachers, and student activity leaders);
- 50 interviews (with principals, assistant principals, teachers, guidance counselors, support personnel, and students);
- 70 observations in English, mathematics, and science classrooms; and
- 9 student shadowing observations.

Data collection primarily focused on 9th- and 10th-grade students and teachers in English, mathematics, and science, although we balanced this focus with other data from key staff and a cross section of the school (e.g., teacher focus groups spanned all grades and subject areas) to gain a comprehensive understanding of our schools. In addition to this fieldwork, we collected numerous school artifacts (e.g.,

documents about the school or processes within the school such as the teacher handbook, academic profile, academic learning walk criteria, etc.) and analyzed administrative, disciplinary, and course-taking data from the district, as well as survey data from teachers, students, and parents.

Main Findings

Our analyses revealed that the practice of *increasing student ownership and responsibility for their academic success* emerged as a distinguishing feature of schools with higher value-added student achievement over those with lower value-added achievement. Increasing student ownership and responsibility for their academic success means creating a set of norms and school-wide practices that nurture a culture of learning and engagement among students. Students who are taking responsibility for their own learning are personally invested in their education and committed to understanding the work. Putting such a focus in place involves building students' confidence and understanding of how they can take responsibility for their own academic success. We emphasize two activities important for increasing this capacity: 1) changing beliefs and mindsets of students to increase self-efficacy (that is, an individual's beliefs about his or her ability to perform behaviors that should lead to expected outcomes) and 2) engaging students to do challenging academic work.

Notably, the higher value-added schools neither assumed that students would develop this ownership on their own, nor merely declared it as an expectation. Rather, teachers and other adults scaffolded students' learning of both academic and social behaviors and put structures in place to guide them in taking ownership and responsibility for their academic success. That is, these schools made a concerted effort to provide encouragement and support to students. Both of our higher value-added case study schools provided this scaffolding through integrated strategies of academic press and academic support for students. Furthermore, teachers adopted—and were held accountable for—the perspective that student ownership for learning is important and should be developed. These findings suggest that high schools can address gaps in student achievement and equip students to meet the educational challenges and workforce demands of the twenty-first century, by developing programs, processes, and practices that fully engage students and develop them as self-directed learners.

The results further indicated that this emphasis on student ownership and responsibility was effective because it was enacted through what we call “school-wide facilitating conditions” that include: the development of a shared school mission; alignment of school-wide structures and practices to the mission; a culture of trust; faculty and student stability; the presence of caring and positive relationships between students and teachers; individual and collective teacher efficacy, teacher accountability, and a safe and orderly school environment.

Next Steps

The next stage of the Center's work involves bringing district leaders, school leaders, and teachers together to collaborate in the design and implementation of an innovation to increase students' ownership and responsibility for their own academic success to be used in other FWISD high schools. In this way, the central findings from this report will define a design challenge to guide a collaborative design process. A District Innovation Design Team (DIDT) will develop an innovation based on the research findings presented in this report, the broader research literature on effective practices, and a needs assessment on

what aspects of student ownership and responsibility are currently in place in their high schools. Then School Innovation Design Teams (SIDTs) will pilot, adapt, and implement the innovation in three schools. As part of this process, the innovation schools themselves will also study and evaluate the impact with an eye to understanding the effort required to scale up the innovation. The researchers in the Center will then study and evaluate this implementation, examine its impact, and assess the district's ability to support and scale up the designed interventions to additional high schools.

Introduction.

What distinguishes high schools that “beat the odds” for students from traditionally lower-performing groups from schools that struggle to improve the achievement and graduation rates of these student populations? What types of programs, practices, and processes support better than expected outcomes for students at risk of failure? How can districts identify, adapt, and scale up these practices to their less effective high schools?

These are the questions that the National Center on Scaling Up Effective Schools (NCSU) is addressing. NCSU—a collaborative partnership between research universities, developers, and two large urban districts—is a five-year project funded by the Institute of Education Sciences in the U.S. Department of Education. NCSU focuses on identifying the combination of essential components and the programs, practices, processes, and policies that explain why some high schools in large urban districts are particularly effective serving low-income students, minority students, and English language learners. We then work collaboratively with the districts to develop processes to share and implement these practices in less effective high schools.

NCSU works with high schools for four main reasons. First, the overwhelming majority of research on effective schools and school reform is limited to elementary schools. Secondary schools are larger, organizationally more complex, and politically more complicated with multiple administrative layers and subject-based teachers and other specialists that often create natural divisions among staffⁱ and result in disagreements around goals, policies, and practices. Such factors make the process of change more difficult in secondary schoolsⁱⁱ. Second, national, and international comparisons of student achievement indicate that, despite progress in elementary grades, underperformance in high school is a persistent problem.ⁱⁱⁱ There are extraordinary economic and educational consequences for students who are neither college nor workforce ready. Third, national attention has focused on the need to prepare students to succeed in college and careers; high schools play a critical role in achieving these national goals. Finally, as prior research suggests, the relative influence of non-school factors, such as family background, on academic success decreases as students progress through school suggesting widespread opportunities for effective schools to make real and lasting change in student outcomes.^{iv} Put simply, identifying practices that make high schools effective holds the promise of increasing the outcomes and life opportunities of students.

The Center’s work includes several phases. The first involved intensive data collection in our partner district to identify practices that distinguish higher and lower value-added high schools. The second phase uses the central findings from the first phase to define a “design challenge” that will guide a collaborative design process in developing innovations based on these research findings. In the third phase, three lower value-added schools will adapt and then implement the designed innovation as we evaluate this implementation, assess the impact of the intervention designs using interrupted time series analysis with comparison schools, and assess the district’s ability to support and scale up the designed interventions to additional high schools. Involving partners from the participating district on the design team will take advantage of district expertise, help to insure that practices identified for “transfer” are aligned with district’s current goals and initiatives, and help to bring legitimacy to the transfer process.

This report presents results from the first phase of our work with one of our partner districts, Fort Worth Independent School District (FWISD).^v This phase of the Center’s work identified schools in the district that are more and less effective at improving student achievement in English/language arts, mathematics, and science through analyzing value-added student achievement data. We then used a combination of interviews, surveys, and observations to uncover practices and expectations in the higher value-added schools that contribute to their success and distinguish them from the lower value-added schools in the same district.

Through our analyses, the practice of *increasing student ownership and responsibility for their academic success* emerged as a distinguishing feature of schools with higher value-added student achievement over those with lower value-added achievement. These findings suggest that high schools can address gaps in student achievement and equip students to meet the educational challenges and workforce demands of the twenty-first century, by developing programs, processes, and practices that fully engage students and develop them as self-directed learners. The results further indicate that this emphasis on student ownership and responsibility was effective because it was enacted through what we call “school-wide facilitating conditions” that include: the development of a shared school mission; alignment of school-wide structures and practices to the mission; a culture of trust; faculty and student stability; the presence of caring and positive relationships between students and teachers; individual and collective teacher efficacy, teacher accountability, and a safe and orderly school environment.

The Center did not set out to identify student ownership and responsibility for academic success as the practice leading to greater-than-expected gains from students in traditionally low-performing groups. Rather, our data collection and analysis were organized around what we term the “eight essential components of effective schools:”

- Learning-centered Leadership
- Rigorous and Aligned Curriculum
- Quality Instruction
- Personalized Learning Connections
- Culture of Learning and Professional Behavior
- Connections to External Communities
- Systemic Performance Accountability, and
- Systemic Use of Data.

The components of this framework are conceptualized as working together in effective high schools to create deep connections and relationships for both adults (leaders, teachers, and staff) and students. Our framework emphasizes that it is not the adoption of any individual component through specific programs or practices that leads to school effectiveness, but the integration and alignment of school processes and structures across these eight components.^{vi} Although a consensus has recently begun to emerge around these components of successful schooling, far less is known about the ways in which educators develop, implement, integrate, and sustain these components. This is where the current report hopes to shed light.

Our analysis of four FWISD case studies revealed that those schools with higher value-added student achievement held high expectations for the learning of all students and enacted practices that helped

students assume ownership and responsibility for their learning. Notably, schools neither assumed that students would develop this ownership on their own, nor merely declared it an expectation. Rather, teachers and other adults scaffolded students' learning of both academic and social behaviors and put structures in place to guide students in taking ownership and responsibility for their academic success. That is, these schools made a concerted effort to provide encouragement and support to students. Furthermore, teachers adopted—and were held accountable for—the perspective that student ownership for learning is important and should be developed. The specific practices and school-wide conditions that we observed for facilitating this kind of academic environment will be described in more detail in later sections.

The next stage of the Center's work involves district leaders and school leaders and teachers coming together to design and implement an innovation to increase academic press and students' ownership and responsibility for their own academic success in other high schools in the district. This collaborative process will seek to develop an innovation (e.g., a school-level program or practice) that is focused on increasing student ownership and responsibility. Much of the work will be performed by a District Innovation Design Team (DIDT) (such as teachers, other school-level personnel, central office personnel, and researchers) and School Innovation Design Teams (SIDTs). Our colleagues at the Educational Development Center (EDC), a global non-profit based in Waltham, Massachusetts, who have experience developing leadership and instructional programs will facilitate this process, guiding the DIDT and SIDTs through the steps of 1) developing a prototype; 2) testing the ideas in the prototype; 3) learning from the testing and making revisions; and 4) adapting to school context based on the learning, prior to initial implementation in three district high schools. Involving partners from the participating district on the design team will take advantage of district expertise, help to ensure that practices identified for "transfer" are aligned with the district's current goals and initiatives, and help to bring legitimacy to the transfer process.

This report is divided into six sections. The first describes the state and district context for our work, as well as the data and methods used in this study. The second section provides brief summaries of the four schools that participated in this study. The third section presents the main findings, including the focus on increasing student responsibility and the facilitating conditions that further enabled school success. The fourth section describes the essential components that served as the theoretical framing for this study and summarizes findings across our four case study schools within these components. The fifth section presents seven specific examples of promising practices to illustrate how the study high schools effectively implemented practices to increase student ownership and responsibility. The final section provides concluding comments and outlines the next steps for the Center.

Research Design.

State and District Context

Fort Worth Independent School District (FWISD) is the sixth largest district in Texas and the 39th largest in the country, serving over 80,000 students. Table 1 presents 2010-11 student demographic characteristics and assessment results (based on the Texas Assessment of Knowledge and Skills, or TAKS) for the state (excluding charters) and FWISD.^{vii} During that period students in FWISD were predominantly Hispanic (59%), African American (23%), and economically disadvantaged (76%). Over a quarter were designated as Limited English Proficient (LEP). The achievement results demonstrated that FWISD lagged behind state averages, as is the case in most large urban districts. FWISD had 142 campuses at that time, 14 of which were high schools. FWISD had been rated Academically Acceptable by the state for the past three years.

Table 1. Outcome and Demographic Data for Texas and Fort Worth Independent School District

Variable	State of Texas	Fort Worth ISD
<i>Outcomes (all grades)</i>		
Percent passing Reading/ELA	90	82
Percent passing Writing	92	86
Percent passing Mathematics	84	75
Percent passing Science	83	73
Percent passing Social Studies	95	92
Four-year graduation rate (Class of 2010)	84	79
Attendance rate	96	95
Average SAT score	985	903
Average ACT score	21	18
<i>Demographics (all grades)</i>		
Total students	4,778,688	81,511
Percent African American	13	23
Percent Hispanic	50	59
Percent White	32	14
Percent other race/ethnicity	6	3
Percent economically disadvantaged	59	76
Percent Limited English Proficient (LEP)	17	28

Note: Data come from the Texas Education Agency (<http://ritter.tea.state.tx.us/perfreport/snapshot/2011/state.html>)

Texas has a long history of test-based accountability, beginning with the Texas Assessment of Basic Skills (TABS) in 1980 and the first school accountability ratings in 1993. The high-stakes accountability environment has only increased over time. During the 2011-12 school year when the data for this report were collected, the assessment, accountability, and graduation requirement programs were in transition. The first major change concerned the state assessment. The TAKS assessment used when this project began will be phased out completely after the class of 2014 graduates. TAKS was composed of end-of-

grade assessments in math, reading and/or ELA, writing, science, and social studies in grades 3-11, with graduation requirements tied to passing these exams. Beginning in spring 2011, Texas rolled out the State of Texas Assessments of Academic Readiness (STAAR), which will represent a significant departure from the TAKS in high schools. Specifically in 2011-12 STAAR included 12 end-of-course (EOC) assessments at the high school level, in place of the four graduation tests used under TAKS.^{viii} The EOCs will assess Algebra I, geometry, Algebra II, biology, chemistry, physics, English I, English II, English III, world geography, world history, and U.S. history. In addition, STAAR was designed to be more rigorous and measure greater depth of understanding. Changes were made to align the state assessment with postsecondary readiness measures. Further, STAAR has greater implications for students. Each class that culminates with an EOC assessment will count the score as 15% of the student's final grade in the subject. Further, high school graduation is linked to a student's cumulative score across 8-12 EOCs.

The transition in assessments created two key challenges for high schools in Texas at the time of this study. For starters, first-time 9th-graders faced different graduation requirements (focused on the STAAR EOC tests) than students in grades 10 to 12 (which were focused on the TAKS). Second, performance standards for the secondary level assessments were still being determined when we began data collection. Thus, teachers did not know what cut scores would be used to distinguish the three levels of academic performance -- advanced, satisfactory, and unsatisfactory. Thus, while the transition to STAAR emphasized increased rigor, depth, and complexity, the absence of performance standards meant teachers did not have complete information about the STAAR.

The transition in assessment was accompanied by an overhaul of the state accountability system. In addition to federal Adequate Yearly Progress (AYP) requirements, the state accountability system assigned the following ratings to schools: Exemplary, Recognized, Academically Acceptable, and Academically Unacceptable. For the 2009-2010 and 2010-2011 school years, both federal adequate yearly progress (AYP) and state accountability ratings were based on the TAKS. However, with the transition to the STAAR, the state decided that no new state accountability ratings would be assigned based on state assessment results from the 2011-2012 school year. The state was still required to make annual federal AYP determinations, however the criteria for doing so were not available until after most testing had ended. Texas is developing a new school rating system and the first state accountability ratings based on the new STAAR assessments were released in Summer 2013.

FWISD has responded to the Texas state standards and accountability system by developing detailed curriculum frameworks it expects to implement across the district. These frameworks were developed by teachers and include pacing guides and recommended activities for most grades and classes (particularly in tested subjects). The curriculum frameworks are reinforced by district-wide Curriculum-Based Assessments (CBAs) that are benchmark assessments designed to assess the extent to which students have mastered content that was represented on the curriculum frameworks for the preceding time period. Depending on the subject, CBAs are administered every six or eight weeks.

In addition, Texas has established three different high school diploma pathways minimum high school program, recommended high school program, and distinguished achievement (advanced) high school program. The key difference is an increase in course requirements, particularly in mathematics, science, social studies, and foreign language.

The national economic crisis also has affected schools in Texas. As happened in many other states, the crisis led to financial strictures in Texas that resulted in the elimination of billions in state appropriations for schools. State education spending has been frozen at 2006 levels, causing personnel concerns in FWISD, as payroll constitutes 84% of its budget. Thus both the state and district were operating under severe budget constraints at the time of this study.

In the 2011-12 school year, FWISD was in the process of hiring a new superintendent, who was announced in January 2012 (in the midst of our data collection). The district has a number of programs in place, include site-based-decision-making, pay for performance, and themed school choice programs. Specifically, the FWISD site-based-decision-making (SBDM) program was approved in 1992 with a goal of improving student achievement by tapping the input of multiple stakeholders. Each SBDM team consists of the principal, four teachers, three parents, one campus-level nonteaching professional staff member, one district-level nonteaching professional staff member, two community members, and two business community members. Second, the district was in the first year of implementing a federal Teacher Incentive Fund grant known as RISE (Redesign to Increase Schools of Excellence). The goals of the program (which was being implemented in 19 schools) include rigorous teacher and principal evaluation, high expectations and achievement, changing school climates, and building teacher and principal capacity. The RISE program replaces a prior performance pay initiative called PEAK, which was in place from 2008-2011.

Another program, the FWISD Gold Seal Programs of Choice program (GSPOC) was begun during the 2011-12 school year to allow students to choose a course of study based on their interests. All high schools offer GSPOC options, and three high schools have additional choice elements. Choice options also exist at the middle and elementary levels. The high school GSPOC program is being phased in one grade at a time, so it affected only 9th-graders in 2011-12. Students must apply even if the program is at the student's zoned school. Program of Choice and School of Choice students receive priority in course placement. Despite the fact that this was the first year of implementation, students in grades 10, 11, and 12 may also have been enrolled in courses affiliated with the GSPOC as many of these programs evolved from existing magnet programs or specialties in the school. Transportation is provided to FWISD students if they choose a program that is not available at their zoned, neighborhood school.

Data and Methods

The data in this report come from a comparative case study of four high schools in FWISD during the 2011-2012 school year. The schools were selected based on school-level value-added measures. In short, two schools had relatively higher value-added (HVA) results and two had relatively lower value-added (LVA) results.

Data were collected in Fort Worth in three time periods during the 2011-12 school year. Data collection methods included focus groups (with students, teachers, student activity leaders, district parent liaisons); interviews with principals, assistant principals, guidance counselors, support personnel, teachers, students, district personnel, and students; observations of English, mathematics, and science classrooms; shadowing students during their regular school day; and the collection of school and district artifacts. Data collection primarily focused on 9th- and 10th-grade students and teachers in English, mathematics, and science, although we balanced this focus with other data from key staff and a cross-section of the school (e.g., teacher focus groups spanned all grades and subject areas) to gain a comprehensive understanding of our schools. Table 2 below shows the amount of data collected by school. See Appendix A for more information on the data and methods.

Table 2. Types and Amounts of Data Collected at Case Study Schools

Data type	LVA Schools		HVA Schools	
	Mountainside	Valley	Lakeside	Riverview
<i>Interviews</i>	51	50	54	48
School Administrators	4	5	5	7
Teachers	18	19	18	18
Deans of Instruction	2	2	1	0
Department Heads/Lead Content Teachers	6	6	3	6
Guidance Counselors	2	4	3	2
Support Personnel	9	5	16	5
Students	10	9	8	10
<i>Focus groups</i>	9	8	9	9
Students	3	3	3	3
Teachers	3	3	3	3
Student Activity Leaders	3	2	3	3
<i>Observations</i>	76	81	87	78
Classroom Periods	66	72	73	68
Students Shadowed	10	9	8	10
Faculty/School Administrative Team Meetings	0	0	6	0

We observed and videotaped a total of 274 class periods of English Language Arts (ELA), math and science. The same teachers who participated in the interviews were also observed. Four class periods per

teacher were videotaped and coded by trained observers. In most cases, two of the class periods were observed in Wave 1 and two were observed in Wave 2 (although a few observations that were missed due to teacher absences or scheduling difficulties were made up in Wave 3). We used an observational tool called the Classroom Assessment Scoring System – Secondary (CLASS-S)^{ix} to assess teacher-student interactions in the classroom. We observed and coded the following domains and dimensions using the CLASS-S framework: Emotional Support (positive climate, negative climate, teacher sensitivity, regard for adolescent behavior), Classroom Organization (behavior management, productivity, instructional learning formats), Instructional Support in the classroom (content understanding, analysis and problem solving, quality of feedback, and instructional dialogue), and Student Engagement. See Appendix B for additional information on the classroom observations.

In our final wave of data collection in late spring 2012, we conducted 37 student shadowing observations in which a member of the research team accompanied a student through his or her school day. Every five minutes, the researcher recorded data in an electronic log detailing the class period, precise time, course subject, academic track, location, the teacher's expectation of the student (what the student was supposed to be doing), the academic nature of that task (i.e., related to content or not), and level of student engagement in that task (active engagement, passive engagement, not engaged). If the student was off-task the observer noted what behavior the student in engaging in and with whom the student was interacting. The coding for activities in which teachers expected students to engage included: whole class discussion, direct instruction, pair or group work, individual work, an interactive or student led activity, taking a test or quiz, transitioning between activities, other academic activities (includes watching or giving a presentation, general studying, watching a film or video, or academically-oriented talk with the teacher), non-academic activities (such as socially-oriented talk with the teacher, handing out report cards, saying the Pledge of Allegiance, school announcements), other (for non-core subjects, this includes doing Reserve Officer Training Corps (ROTC) drills and playing sports in gym class), and nothing (i.e., there is nothing the student is supposed to be doing at that moment). See Appendix C for more information on the student shadowing observations.

In addition to this fieldwork, we obtained administrative, disciplinary, and course-taking data from the district. We also collaborated with the district to obtain survey data from teachers and students. Analyses of administrative data are presented as school-level means or percentages. Analyses of survey data are presented as school-level means, alongside the district average across all high schools. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the other 12 high schools in the district. Appendices D and E provide details on the student and teacher survey data, respectively.

Case Summaries.

In this section, we describe the two lower value-added (LVA) schools and the two higher value-added (HVA) schools. Table 3 provides data on the demographic characteristics and value-added rankings. To protect the identity of the schools and the participants therein, we have provided ranges and used pseudonyms. We then provide brief case summaries focusing on the school context, cross-cutting themes, and main findings. Note that due to our sampling strategy, we refer to the schools as either lower value-added (LVA) or higher value-added (HVA). However, as described in the case summaries below, in some cases schools may be performing relatively better in some subject areas or for some student subgroups than others and thus one LVA school (Valley) has relatively strong outcomes in some indicators and one HVA school (Riverview) has relatively weak outcomes in some indicators. This continuum of performance outcomes is also evident in our findings related to student responsibility and ownership. Note that the case summaries do not focus on listing formal structures or programs in each school. Rather, we focus instead on how systems or practices were enacted, regardless of their formal structure. This is because the formal structures or systems in the schools were largely similar—such as decisions to have grade-level teaming, professional learning communities, common planning time within departments, common assessments, etc. It is likely that the district influence shaped the basic structure of these schools. When individual schools do have unique structural elements that appear to facilitate or impede school improvement, we do describe those elements.

Table 3: Demographic Characteristics and Performance Indicators of Case Study High Schools

	LVA Schools		HVA Schools	
	Mountainside	Valley	Lakeside	Riverview
School characteristics				
Enrollment	700-1200	>1500	700-1200	>1500
Percent Black	>50%	<20%	<20%	<20%
Percent Hispanic	<40%	>75%	>75%	41-75%
Percent economically disadvantaged	60-75%	>75%	>75%	<60%
Percent Limited English Proficient	<7%	>7%	>7%	<7%
2010 Graduation Rate	<80%	<80%	>85%	>85%
2011 State Rating	Academically Unacceptable	Academically Acceptable	Academically Acceptable	Academically Acceptable
Value-added rank within district, all subjects, all students (out of 13 total)	13	11	1	3

Note: The state accountability rating and graduation rate were the most recent data available at the time of school selection. Demographics represent the composition of the schools at the time of our visits (2011-12). The value-added ranks are derived from 3 years of data of school-level value-added in math, science, and reading. The most recent year was 2010-11.

Mountainside High School

One LVA school is Mountainside High School, which is predominantly African-American. The value-added indicators ranked it last of the 13 high schools in the district in reading and science, both for all students as well as the two largest subgroups: African-Americans and those eligible for free- and reduced-price lunches. School outcomes such as graduation rates, dropout rates, and state accountability ranking were also very low compared to district averages.

Multiple participants with whom we interacted at Mountainside reported that while many elements of the school are functional, other systems that allowed the school to operate as an effective organization in the past may have been breaking down. Several participants asserted that systems such as discipline and scheduling did not function as they should and thus complicated the work of faculty. Multiple participants reported that a lack of communication and trust prevented staff members from working together to meet the needs of students. Some participants traced these breakdowns largely to instability caused by significant turnover in personnel. In addition, multiple participants reported a culture of “multiple chances” that allowed students to make up poor or missed work, while some students were not punished for disciplinary infractions. Although offering additional opportunities for success can provide some benefits, the practices at Mountainside appeared to reduce student accountability and allow students to take the easiest path to graduation.

Valley High School

Valley High School, which serves a predominantly Hispanic and economically disadvantaged student population, had undergone considerable change in the recent past. We describe Valley as a lower value-added school because the value-added measures indicate the school was near the bottom of the district when combining all subjects for all students. However, for some subgroups and subjects, the school was closer to the district average. The graduation and dropout rates were near the district median.

A school culture that included gangs and low achievement rates led Valley to become a turnaround school several years ago, with a new principal who was given autonomy to hire staff. The principal hired a new administrative team and 40 percent of the faculty, educators who were willing to work long hours and emphasized outreach to students. Valley has since succeeded in the areas targeted for turnaround—creating a more positive school culture, building personalized relationships with students, and developing students’ basic skills. Several related practices underlie the success, while others help explain why the value-added scores, particularly in science and English Language Arts (ELA), remained lower than other high schools in the district in our study findings.

A key driver of the school’s success was its strong leadership and the principal’s agenda to personalize relationships. This was complemented by the loyalty and trust of the staff, and the school-wide buy-in to the principal’s personalization agenda. While the autonomy given to teachers engendered trust and buy-in to the principal’s goals, it also appeared to support an “anything that works” instructional environment lacking the supports that might increase instructional rigor. The principal acknowledged it was time to begin focusing on rigor, but used indirect strategies such as talking to individual teachers about observation ratings rather than through a concerted, stated effort so as not to over-stress teachers.

Riverview High School

A public high school with a higher value-added ranking, Riverview is one of the larger and higher performing high schools in the district. Its special programs that appeal to many students include a large number of advanced courses, the Gold Seal Programs of Choice, and vocational training in areas such as agriculture and horticulture, construction, and information technology. The advanced courses attract primarily white, higher-income students, often from outside the school's assignment zone, while regular-level courses have a greater proportion of minority and lower-income students. On the value-added rankings, Riverview was third overall among the district's 13 high schools. However, it ranked sixth for free-lunch-eligible students and 12th for Hispanics.

Findings from our case study work offer insight into the school's success as well as the need for improvement. Across multiple interviews, students, faculty, and district leaders acknowledged the persistence of "two schools within the school," a problem Riverview addressed with two broad strategies: to encourage more students to take honors and Advanced Placement (AP) courses and to protect and increase the quality and number of these courses. Faculty also described ongoing support for a wide variety of extracurricular activities as a key strategy for engaging students socially and academically and for building respect between students and teachers. While evidence exists that these two strategies have increased opportunities to learn for some students, they have failed to reach many disengaged students.

Lakeside High School

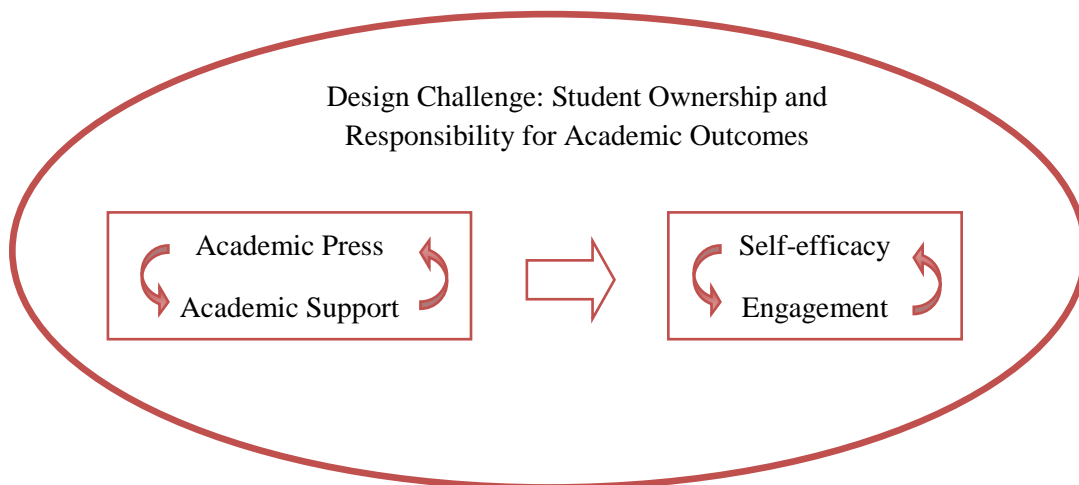
Described as a community school, Lakeside High School, a higher value-added school, has one of the highest concentrations of poverty in the district and serves a predominantly Hispanic population. Participants described the need for the school to "take care" of students' emotional needs, noting that students sought stability at the school when it was lacking elsewhere in their lives. The value-added indicators ranked it near the top of the district in math and science, both for all students and most subgroups. The value-added indicators placed it near the middle of the district for reading. Rankings for ELL students were low, however, particularly in science.

Study participants indicated the school had improved significantly over the last several years, starting with the previous principal and continuing with the current leadership. A driving feature of the school was a shared and systemic focus on helping students to take responsibility for their own learning. Promoting students' ownership and responsibility at Lakeside had both social and instructional aspects, including downplaying traditional modes of instruction in favor of a more student-centered framework and cooperative learning activities to engage students more actively. The school also stressed a culture of learning to hold students accountable and support them through systematic but personalized interventions. The administration fostered a culture of trust and positive climate that facilitated school processes and practices by listening to the concerns of faculty and staff and supporting their professional growth. School-wide practices included: the Lakeside Code, a set of expectations for students and teachers; Learning Time, a lunchtime tutorial system; Assignment Logs, a shared template for students to monitor their progress; and the Intervention Committee, which provided supports for students who were not meeting expectations. Tracing the development of recent improvement activities makes clear that the shared vision and teacher buy-in built over several years and the introduction of current structures formalized this vision of student ownership and responsibility.

Main Findings.

What differentiated the two HVA schools from the two LVA schools were *practices that helped students take ownership and responsibility for their own academic success*. Teachers and other adults in the HVA schools scaffolded students' learning of both academic and social behaviors to guide them in assuming ownership and responsibility for their academic success. However, this strategy alone did not explain above-average gains for students. The schools also developed an integrated system of academic press (the encouragement of students to achieve) and support (resources to foster academic success) that was facilitated by a set of school-wide facilitating conditions. This involved promoting self-efficacy by changing students' beliefs and attitudes and engaging them to do challenging academic work. Thus, self-efficacy and engagement are considered indicators of student ownership and responsibility, while academic support and press are strategies used to develop student ownership and responsibility. Figure 1 presents a diagram of the theory of action behind the design challenge. This figure is intended to illustrate how our findings suggest the elements of developing student ownership and responsibility fit together. While our data do not permit causal claims, our findings are consistent with findings from other research. As illustrated in this figure, concerted school efforts to develop an environment of both academic press and support work to increase outcomes such as student self-efficacy and engagement. The intermediate outcomes of self-efficacy and engagement reinforce each other in a reciprocal relationship, and ultimately influence student achievement outcomes. These processes are supported by a set of school-wide facilitating conditions.

Figure 1: Increasing Student Ownership and Responsibility for Academic Outcomes



School-wide Facilitating Conditions

- Shared vision
- Aligned and coherent structures
- Trust
- Faculty and student stability
- Care and relationships between students and teachers
- Teacher accountability
- Individual and collective teacher efficacy
- Safe and orderly environment

Defining Student Ownership and Responsibility

To help begin the work of the design challenge we provide definitions and specific examples of how our case study schools addressed student responsibility and ownership for academic learning. In this section, we describe what we mean by student ownership and responsibility and how schools can create conditions to develop it. We also make connections to the broader literature on these issues to show how our findings build off past work. The next section presents the evidence from this study that illustrates the importance of student ownership and responsibility.

Increasing student ownership and responsibility for their academic success means creating a set of norms and school wide practices that nurture a culture of learning and engagement among students. Taking responsibility means becoming personally invested in one's own learning and committed to understanding the work. Encouraging such a focus involves building students' confidence and understanding of how they can take responsibility for their own academic success. We emphasize two activities important for this: 1) changing students' beliefs and mindsets to increase self-efficacy (that is, an individual's beliefs about his or her ability to perform behaviors that should lead to expected outcomes)¹⁰ and 2) engaging students to do challenging academic work.

Research shows that students who have strong, positive mindsets and a high degree of self-efficacy exhibit more positive academic behaviors, choose more difficult tasks, have higher engagement with academic work, demonstrate more persistence despite setbacks, and have higher achievement across academic areas.¹¹ Such students also demonstrate both behavioral and academic engagement.¹²

Behavioral engagement involves the basic behaviors expected in school, such as coming to class prepared and completing assigned tasks. They are important predictors of student achievement and, thus, predictors of whether students will graduate or drop out.¹³ Academic engagement is defined as student investment in learning and the desire to challenge oneself. Students who are cognitively engaged exhibit strategic or self-regulating behaviors, are focused, and ask questions to clarify their understanding. Such students use strategies including rehearsing, summarizing, and elaborating in order to organize and understand the material.¹⁴

When students have a sense of ownership and responsibility for their learning, they:

- Believe they can succeed at challenging academic tasks.
- Are personally invested in academic success—both with the immediate learning task before them and in long-term outcomes such as college and career readiness.
- Believe it is up to them and in their control to succeed in school.
- Are able to identify and work toward learning goals with self-direction, productivity, and initiative.
- Demonstrate their sense of responsibility through behaviors such as coming to class prepared, completing assignments well and on time, making up missed work in a timely manner, and seeking additional help when they are struggling (i.e., going to tutoring).
- Demonstrate their investment through engagement in class, asking questions when they are confused, monitoring their own learning, and attempting to master material with which they struggle.
- Demonstrate life skills such as initiative, self-direction, productivity, and accountability.

Changing Mindsets to Increase Self-Efficacy

Bandura¹⁵ defines self-efficacy as people's beliefs about their ability to perform behaviors that should lead to expected outcomes. Individuals with high academic self-efficacy are more likely than those with low self-efficacy to choose more difficult tasks, to expend greater effort, to exhibit more self-regulatory strategies, and to persist longer on these tasks.¹⁶ Self-efficacy has also been shown to predict academic achievement across academic areas and levels.¹⁷

Our definition of student ownership and responsibility also involves conceptions of the student mindset, in particular the presence of an academic and flexible mindset. We draw on Dweck's¹⁸ research on the differences between people who have *fixed* mindsets and those who have *flexible* mindsets. Students with a flexible mindset believe that intelligence can be developed through effort, while students with a fixed mindset believe that intelligence is static and indelible. Students with a flexible mindset respond

positively to challenges and persist in the face of adversity while those with a fixed mindset get defensive or give up easily. Similar to self-efficacy and a flexible mindset is the concept of an academic mindset that shapes how students see themselves in relation to intellectual work.¹⁹ We use the term academic self-efficacy to capture these various related ideas because it most closely captures the sense that students believe they have the capacity to succeed academically and ties their behaviors to expected outcomes.

Developing Student Engagement

Student engagement is a multidimensional construct that includes cognitive and behavioral forms of engagement.²⁰ Behavioral engagement represents students exhibiting the basic behaviors that are expected of them in school, such as coming to class prepared and doing the tasks set out for them. Students are cognitively engaged when they are also putting forth the mental effort to fully understand the work at hand. While both reflect dimensions of a student's behavior, cognitive engagement behaviors are often more difficult for an outsider to observe. These two dimensions are sometimes referred to as substantive and procedural engagement.²¹ While we discuss cognitive and behavioral engagement as two dimensions, they may also be considered a continuum of student engagement that ranges from the most teacher-directed to the most student-initiated where an engaged student might participate autonomously.²² The extreme end of cognitive engagement can be characterized as such total involvement in an activity that a person loses awareness of time and space.²³

Cognitive engagement is defined as student investment in learning and the desire to exceed requirements and challenge oneself. Students who are cognitively engaged are committed to their learning and to understanding the work at hand. They exhibit strategic or self-regulating behaviors, are focused and ask questions to check or clarify their understanding.

Cognitive or intellectual engagement relates to student investment in learning and a desire to exceed requirements and be challenged. Cognitive engagement is indicated when students exhibit strategic or self-regulating behaviors as they engage in academic tasks.²⁴ Cognitive engagement is also demonstrated by the ways in which students invest in the instructional tasks laid out by teachers and their concentration on those tasks.²⁵ Cognitively engaged students exhibit self-regulation or the ability to be strategic about how they study. Further, cognitive engagement includes problem solving, preference for hard work, and positive coping in the face of failure. Such students use metacognitive strategies to plan, monitor, and evaluate their cognition when accomplishing tasks and learning strategies. These include rehearsing, summarizing, and elaborating in order to memorize, organize and understand the material.²⁶ The deeper the strategies, the greater the cognitive engagement is. This manifests in greater mental effort, more connections between ideas, and greater understanding overall.

We define *behavioral engagement* as positive conduct (e.g., following the rules, adhering to classroom norms, the absence of disruptive behaviors such as cutting class, skipping school, or getting into trouble); involvement in learning and academic tasks and behaviors including effort, persistence, concentration, attention, asking questions, and contributing to class discussion; and student participation in school-related activities (e.g., athletics or school governance).²⁷ These forms of behavioral engagement are important predictors of student grades, which then predict graduation and dropping out.²⁸

Students who are behaviorally engaged do things that demonstrate their commitment to their learning. For

example, they exert effort, are persistent, pay attention, participate in positive ways, follow school rules, are involved in learning and academic tasks, are on task, attend school, and get to class on time.²⁹ Further, behaviorally engaged students complete their classwork and homework, organize their materials, comply with school rules, persist, participate and take initiative in classroom activities, and pay attention.³⁰

School Strategies to Develop Student Ownership and Responsibility

It is important to note that while student ownership and responsibility are measured by a set of outcomes at the student level, our research indicates that student ownership and responsibility resulted from concerted school efforts. Teachers and other adults in the school scaffolded learning of both academic and social behaviors that guided students in assuming ownership and responsibility of their academic success. Both of our higher value-added case study schools provided this scaffolding through integrated strategies of academic press and academic support.

We define *academic press* as the degree to which both the school and the classroom environment push students to achieve. Academic press includes staff expectations, school policies, and practices, norms, and rewards generated by staff and students.³¹ It exists when teachers expect students to work hard by (e.g., do more challenging work or attempt more challenging problems). Academic press also includes the push to get students into higher-level classes. When academic press is present it is part of the “nature of teacher norms toward student instruction at the school”.³² Academic press is related to gains in student achievement, particularly in low-SES schools.³³

Academic support is the degree to which the school and classroom environment provide the resources students need to succeed academically—that is, to meet the demands created by academic press. Teachers can directly support students in developing ownership and responsibility by giving them personalized academic support.³⁴ Academic support can take many forms. It includes elements of curriculum (when schools provide challenging academic courses), the effective organization of time (such as extended learning opportunities), effective use of personnel to target individual student needs, rewards for student academic success, and the use of authentic and formative assessment.³⁵ Classroom instruction is critical. It provides academic support through collaborative, engaging activities that are relevant to students’ lives, a source of empowerment for students, designed around authentic questions, and focused on higher-order thinking skills.³⁶ Further, there is evidence that teachers can instruct students in strategies for engaging cognitively and behaviorally.³⁷

In short, increasing student ownership and responsibility requires a commitment by teachers and the school as a whole to a scaffolded approach. Educators need to establish an environment of academic press and support to help students take ownership of their learning. We outline four attributes of schools that succeeded at increasing student responsibility and provide examples of strategies they used.

- Teachers and other school personnel have high academic expectations for students.
 - School personnel hold students accountable to high academic standards by communicating clear and consistent expectations for performance and explaining the gap between those expectations and a student’s current standing.

- Teachers use instructional strategies and learning goals that push students into higher-level thinking.
- Teachers create a sense of urgency among students to work productively during class time (i.e., giving students time cues to complete tasks).
- The school day is structured to maximize and protect academic learning time.
- School personnel encourage all students to take challenging courses and actively identify students who could succeed in more challenging courses.
- Teachers maximize productive learning time (i.e., starting class on time, minimizing transition time during activities).
- Teachers and other school personnel provide instructional supports to help students meet high expectations.
 - Teachers use instructional strategies that require students to explain, analyze, problem solve, and produce something rather than applying formulaic procedures.
 - Teachers use authentic instructional strategies that emphasize the relevance to students' current and future lives.
- Teachers and other school personnel provide organizational supports to help students meet high expectations.
 - The school day is organized to provide opportunities for struggling students to get extra help.
 - Teachers and other school personnel identify students who are struggling and develop a plan to intervene and provide additional supports.
- Teachers and other school personnel use techniques to deeply engage students in academic work.
 - Adults in the school model and explicitly teach students the behaviors that demonstrate investment and a sense of responsibility.
 - Teachers empower students by letting them lead classroom activity and discourse.
 - Teachers build on students' intrinsic motivation by allowing them to apply the skills being taught in class to their areas of interest.
 - Teachers equip students with skills and strategies to learn how to learn.

Evidence on Student Ownership and Responsibility

This section presents the evidence from this study that illustrates the importance of student ownership and responsibility and the environment of academic press and support that our case study schools established. We draw on all four of our case study schools and emphasize the characteristics that appeared to differentiate the higher and lower value-added schools (HVA and LVA schools, respectively). In some cases, due to recent improvements in Valley through the turnaround efforts, we describe how Valley and the two HVA schools differ from Mountainside. Further, because one HVA school—Lakeside—had the most systematic and explicit focus on increasing student responsibility, we emphasize findings from Lakeside to underscore how one of the most economically disadvantaged schools in the district developed and sustained a coherent and integrated focus on helping students assume ownership of their learning.

Our qualitative data suggest that both HVA schools had stronger and more systemic practices, policies, and resources to establish an academically rigorous school environment where students were pressed to achieve and supported in doing so. Indeed, one higher value-added school focused explicitly on increasing student ownership and responsibility for their learning. The vision shared by adults of student ownership and responsibility entails both changing the cultural/climate and instruction, including a focus on moving away from traditional modes of instruction to more meaningful, student-centered, and cooperative learning activities that require students to be actively engaged in their learning. This vision was led by the current principal, but had developed over several years. Several key personnel had realized that systems previously created in the school had led students to depend on teachers and other adults, training them to rely too heavily on others for their learning. School leaders decided to tackle that challenge in order to push for greater improvement in student achievement. The efforts to increase student ownership and responsibility focused on building a culture that holds students accountable for their learning and supports them through systematic but personalized interventions. Lakeside’s levers for academic press were the Lakeside Code, Learning Time, and the focus on student ownership and responsibility to try to enforce high expectations in all classes. (See the Promising Practices section below for a full description.)

For example, the Lakeside Code, which outlines expectations for student conduct, focuses on academic and instructional behaviors rather than discipline or social behaviors. (See also the section below on the Lakeside Code.) Lakeside teachers, students, and administrators described academic behaviors as the heart of the student and teacher accountability mechanisms. School participants reported a strong perception that consequences existed if they failed to meet standards. Similarly, rewards were provided for meeting accountability standards. Notably, adults in the school described a relationship between student behavior and academic performance, recognizing that behavior reflects underlying academic issues. This belief undergirded academic-first responses to problems that were not ostensibly academic. Lakeside also provided systemic support structures to help students meet their academic expectations. While teachers across case study schools described being available to students for tutoring, Lakeside established an extended lunch period to encourage tutoring as the norm. Another key feature of Lakeside’s academic support system was the Intervention Committee, which worked with students who were not meeting standards to determine the root causes of their difficulties and develop a plan to address them.

The other higher value-added school, Riverview, also showed evidence of a strong student culture of learning, at least among the honors students who took the initiative to form study groups, tutor each other, and work collaboratively to master challenging material, often after school. Honors students also reported having been approached by lower-level peers to provide tutoring, outreach supported by adults in the school who allowed the use of classrooms for such engagement. Although this culture of learning was heavily influenced by parental press for high academic standards, even in Riverview where many students are college-bound, there was evidence of concerted strategies to increase student engagement to achieve school-wide rigor. Academics are described as the “driving goal” in Riverview, with concrete academic expectations. The school established academic press and support by highlighting its success with AP/honors courses to encourage more students to take those courses, with a concerted effort to keep the quality high. This outreach, which was targeted particularly at low-income and minority students, was described as a key lever to provide greater learning opportunities for a broad spectrum of the student population. One teacher illustrated this philosophy when she said the faculty was committed to taking students who are not “honors students” and making them into “honors students.”

In contrast, the two LVA schools did not demonstrate a systemic focus on academic press and support. Participants in Valley High School reported they were working on these things, though not systemically. While Mountainside High School lacked student ownership and responsibility overall, small pockets existed in such programs as Junior Reserve Officer Training Corps (JROTC) and Advancement Via Individual Determination (AVID). One reported characteristic shared by the LVA schools was a “culture of multiple chances,” in which students could get several opportunities to make up for failure. While participants reported both positive and negative aspects to this practice, the limited student accountability it fostered supports the premise that academic press is a key difference between HVA and LVA schools. While all four schools provided credit recovery and other opportunities for students to make up failed assignments or courses, Lakeside and Riverview both were able to resolve the tension between supporting students and holding them accountable in ways that did not lower rigor. In contrast, LVA schools had only isolated examples of teachers pressing students and helping them take ownership of their academic success.

Four items on our student survey capture aspects of student ownership and two focus on academic press. Of the items on student ownership, one focused on cognitive engagement and three on behavioral engagement. The academic engagement scale captures whether students get bored in class, find the work interesting, look forward to their classes, and work hard to do their best in class. On average, students were split between agreeing and disagreeing with the academic engagement items. The behavioral engagement measures are: study habits, responsibility-participation, and peer support for academic achievement. The study habits measure captures the extent to which students study and do homework. Students tended to agree that they were engaging in these behaviors. Respondents were most positive regarding the responsibility-participation items, which asked how many students in the school attend class, come prepared, and participate in class activities. The peer support measure captures whether students and their friends support each other academically by talking about what they did in class, preparing for tests together, helping each other with homework, and similar behaviors. For the academic press expectations scale, students were asked the extent to which they agreed with the following statements: my classes really make me think; my teachers expect me to do my best all the time; and my

teachers expect everyone to work hard. In general, students agreed with these statements. The academic press challenges scale included items about the difficulty of class work, tests, and teacher questions and asked how often students felt challenged. Student surveys were administered district-wide to understand students' perceptions. Across the district, students reported feeling challenged several times a month.

In general, survey responses indicated stronger student responsibility and engagement at the HVA schools, though the evidence was not entirely consistent. Scale averages for Riverview were significantly higher than the district average, with the positive difference largest for study habits and participation and lower for engagement. This is consistent with our qualitative finding of a strong student culture of learning at Riverview. At Lakeside, the academic engagement and participation scale averages were significantly higher than district means, but the scales on study habits and peer support for academic achievement were lower. Results for the LVA schools were significantly lower in some areas and significantly higher in others. For instance, Mountainside had a statistically significant higher average for student study habits and peer support for academic achievement, compared with district means.

Table 4. Student Survey Data on Academic Press and Student Ownership

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Academic Engagement	2.43***(-)	2.52***(+)	2.51**(+)	2.49***(+)	2.48 (0.52)	1 – 4
Peer Support for Academic Achievement	2.87***(+)	2.72***(-)	2.77**(-)	2.89***(+)	2.79 (0.54)	1 – 4
Student Study Habits	2.84***(+)	2.67***(-)	2.71***(-)	2.85***(+)	2.76 (0.56)	1 – 4
Student Responsibility: Participation	3.21***(-)	3.51***(+)	3.53***(+)	3.60***(+)	3.44 (0.73)	1 – 5
Academic Press: Expectations	3.04***(-)	3.13	3.07***(-)	3.12	3.11 (0.53)	1 – 4
Academic Press: Challenge	2.98	2.95***(-)	2.97**(-)	3.01*(+)	2.99 (0.60)	1 – 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

One survey result worth noting was that student perceptions of academic press were mixed at HVA schools. Riverview's scale averages exceeded the district mean for the category, but Lakeside had lower averages. While the differences are small, they were statistically significant in most cases. Valley also

showed some significantly lower scores on the academic press scales.

The student survey also asks whether students participated in credit recovery, tutoring, and preparation for college entrance exams, and responses may shed additional light on student reports on academic press and support. For example, Mountainside students were most likely to report participating in credit recovery, suggesting less press “to do well the first time,” whereas the lower participation rates at the HVA schools suggest greater academic press. On the other hand, students in the HVA schools were more likely to participate in PSAT, SAT, and ACT preparation activities, suggesting more school-wide press to attend college. The effectiveness of Lakeside’s Learning Time tutoring program is evident in the high percentage of students who get tutoring.

Table 5. Percent of Students Participating in Select School Programs

	LVA		HVA		District average
	Mountainside	Valley	Lakeside	Riverview	
Tutoring	58%***	43%*	75%***	26%***	44%
PSAT, SAT, ACT Prep	28%***	12%***	37%***	34%***	25%
Credit Recovery	12%***	8%**	8%	5%***	7%

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school’s mean value compared to the district mean.

The CLASS-S observational data and student shadowing data also presented evidence on student engagement. Both the classroom observation data and the interview data suggested higher student engagement in the two HVA schools. The student shadowing data, however, showed a different pattern, with students in Valley being more actively engaged and students in the two HVA schools less actively engaged. Students in Lakeside were more often observed not engaged at all while students in Riverview were more often observed to be passively engaged. The differences between the shadowing data and other forms of data may be due to the sampling procedure for the student shadowing and the timing of the data collection. While the sampling procedure was similar across the four schools, with only 8-10 students per school we did not have a representative sample of students. Further, the classroom observation data were collected primarily in the fall and winter, when most of the interview and focus groups were conducted, while the student shadowing was done in the late spring. As this was near the end of the school year and state testing had already ended, we may not have found typical activities and levels of engagement.

Table 6. Student Engagement Measures by School

	LVA Schools		HVA Schools		Combined
	Mountainside	Valley	Lakeside	Riverview	
CLASS-S classroom observations:	4.39**	4.58	4.83*	4.88*	4.67
Student engagement					
Student shadowing data					
Actively engaged	22.4%	31.8%***	19.8%*	18.3%*	15.2%
Passively engaged	59.3	54.4***	56.3*	63.7*	54.8
Not engaged	18.3	13.9***	24.0*	18.0*	15.2

Note: The CLASS-S data came from observations of 603 20-minute segments of classroom observations. Classrooms in English/Language arts, mathematics, and science were observed. The observational rating is on a scale of 1-7. The shadowing data come from 1,360 5-minute segments of shadowing students throughout their core subject classes.

* $p < .05$, ** $p < .01$, *** $p < .001$. Tests for statistical significance were computed by comparing the school value to the value of the other three schools combined.

Finally, we also examined administrative course-taking data as another indicator of academic press (see Table 7). We hypothesized that schools with a greater climate of academic press would have more students taking advanced courses and passing Advanced Placement (AP) exams. These data supported the finding that Riverview and, to a lesser extent, Lakeside, were more successful in getting students to take advanced courses and exams. Not surprisingly, given the fieldwork, Riverview had the highest percentage of students taking at least one AP course and passing an AP test. The other HVA school, Lakeside, had relatively low AP participation, although slightly more AP course-takers took the test than at Riverview. Both HVA schools had higher AP exam pass rates than the LVA schools. A recent increase in Valley, the percentage of students taking and passing an AP test buttressed findings from fieldwork about recent academic improvements. Lakeside has also recently increased the percent of AP testers passing the test.

Enrollment patterns in honors and other advanced courses revealed a few differences among the schools, including mixed results in this area for the LVA schools. Valley experienced a drop in enrollment in advanced courses. Mountainside experienced a decrease in AP-related categories. Riverview showed an increase and had a total of 72% of students taking any advanced course (AP, honors, other advanced course), compared to around 51% in the other three schools.

Table 7. Course-Taking Patterns for Most Recent Three Years and Change Over Time

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Most recent 3 years					
% Taking any advanced class	51%	50%	53%	72%	58%
% Taking Honors	47	45	48	70	51
% Taking AP Class	20	21	14	34	23
% AP Takers who take the exam	31	38	55	53	42
% of AP Testers who pass	11	12	25	65	28
Two-year change					
% Taking any advanced class	5%	-8%	10%	-1%	8%
% Taking Honors	4	6	13	-1	7
% Taking AP Class	-6	5	4	1	5
% AP Takers who take the exam	-2	7	3	2	5
% of AP Testers who pass	-6	17	16	0	6

Note: These percentages represent the percent of all students in the school, although the availability of AP courses is not even across grades. The data on the most recent three years is an average of 2008-09, 2009-10, and 2010-11. The change over time data reflect changes from 2008-09 to 2010-11.

School-wide Facilitating Conditions

The Fort Worth ISD case study high schools suggest there are eight key conditions that sustain and integrate the school-wide strategies to increase student ownership and responsibility. They are consistent with the larger body of research on characteristics of effective schools:

- A shared vision
- Aligned and coherent structures
- Trust
- Care and positive relationships between students and teachers
- Faculty and student stability
- Individual and collective teacher efficacy
- Teacher accountability, and
- A safe and orderly environment

Each of these school-wide facilitating conditions is described below, and supporting evidence provided from our case study schools.

Shared Vision

Effective schools are mission-driven organizations; they have a clear shared vision that animates daily life in the school. Leaders can articulate a vision for learning and hold high expectations for all students.³⁸ School improvement efforts are enhanced when teachers and others in the school share the school-wide vision.

The evidence from both case study HVA schools indicates that they had clear, shared goals that linked desired outcomes with strategies to achieve those outcomes. Notably, participants in both higher value-added schools identified a limited number of goals, while participants in the lower value-added schools reported multiple, sometimes inconsistent, goals. More important, goals in the higher value-added schools differed qualitatively. They not only wanted to raise student achievement, but also had a plan for how they would reach that goal. The vision in Lakeside focused on pressing students to take responsibility for their own learning and the vision in Riverview focused on promoting academic excellence through advanced course-taking accompanied by concrete academic expectations.

Aligned and Coherent Structures

The shared vision should not just be a set of ideals, however. It should include a coherent and consistent set of school-wide and classroom-level structures that are aligned with the vision. While classroom-level structures are necessary to ensure that new practices shape core instructional activities, school-wide structures will sustain and support teachers in implementing those activities. For example, instructional program coherence exists when a school 1) develops a common instructional framework with consistent expectations, materials, and strategies; 2) aligns teacher recruitment, evaluation, and professional development structures to the common instructional framework; and 3) strategically garners and allocates internal and external resources toward implementing this framework.³⁹ Prior research suggests schools that increased their instructional program coherence improved twice as fast as less coherent schools.⁴⁰

Both higher value-added schools supported their school-wide vision with aligned and integrated school-wide practices. In Lakeside, several school-wide structures and practices, such as the Lakeside Code, Learning Time, and Intervention Committee, supported the shared vision of increasing student ownership and responsibility for learning. Further, these unique structures did not exist in isolation. Riverview High School also had structures aligned to its shared vision, creating a culture that reflected and advanced the goal of academic excellence and created considerable cohesion. Although Riverview had less strategic planning than Lakeside, there was a backdrop of action in the sense of getting students to excel. In contrast, Mountainside showed little evidence of convergence around any single effort or coordinated set of efforts to support school goals. Further, numerous participants indicated that the lack of communication or connection among adults in the school made it hard to meet the needs of students. Valley provided school-wide structures to support personalization and relationship-building, but structures to support the goal of increasing rigor were largely limited to one department.

The teacher survey data on instructional program coherence supported the broader themes that have emerged from the interviews (see Table 8). Instructional program coherence includes items that capture the coordination and continuity of programs, curriculum, instruction, and learning materials within the school. Teachers from Lakeside, Riverview, and Valley high schools, for instance, rated the coherence of the school's instructional program as higher than the district average.

Table 8. Teacher Survey Data on Instructional Program Coherence

	LVA		HVA		District Mean (SD)
	Mountainside	Valley	Lakeside	Riverview	
Instructional Program Coherence	2.04***(-)	2.80*(+)	2.88*(+)	2.87***(+)	2.63 (0.63)

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools. Note: The scale range is from 1-4.

Trust

Relational trust—which is the presence of mutual respect, personal regard, and a belief in the competence and integrity of others in the school—is a key contextual element of schools that can facilitate school operations and improvement activities.⁴¹ When students trust their teachers and perceive them to be fair, they have higher academic motivation, improved behavior, and are less likely to drop out.⁴² Trust between adults is also a resource for school improvement as it creates a safe environment for teachers, administrators, and other school personnel to take risks, try new ideas, and receive constructive criticism—that is, to learn.⁴³ Although trust can facilitate school improvement efforts, the absence of significant trust does not mean improvements cannot be made; indeed school-wide improvement initiatives can also work to help develop trust among school personnel.

Our data suggest that three of the four case study schools had sufficient amounts of trust to support school improvement efforts, particularly in Lakeside and Valley, one higher and one lower value-added school. In both schools, teachers spoke positively about each other and, in nearly all cases, about the administrative team. Moreover, faculty reported feeling respected by administrators, which in turn enhanced their respect of administrators. The culture of trust in both schools was fostered by two-directional communication between administrators and teachers, as well as collegiality and collaboration. In Riverview, an atmosphere of trust among adults was not described as explicitly as in Lakeside and Valley, although there was a general sense that students trusted their teachers and teachers trusted each other as well as school administrators. In contrast, trust between adults was particularly weak at Mountainside and deteriorated as the year progressed. The distrust reportedly stemmed from inconsistent disciplinary action by the administration, inconsistency in instructional initiatives (i.e., a sense that new initiatives were not given time to play out before another initiative was issued), lack of trust in administrators' evaluations, as well as a sense among some that the administration did not wholly value their work.

The culture of trust evidenced at Lakeside provides the clearest example of how trust can facilitate the successful implementation of school-wide initiatives such as increasing student ownership and responsibility. Trust allows administrators and department heads to hold teachers to high expectations without significant resistance. Likewise, data are seen as a resource for professional responsibility and not information to punish teachers. Perhaps most important for understanding how practices such as the Lakeside Code work, the culture of trust increases teacher support for the shared vision and allows

teachers to feel supported when holding students accountable and pressing them to be responsible for their learning. In contrast, while trust facilitated a sense of community in Valley, it was not sufficient to ensure high expectations for students or rigorous instruction.

The teacher survey had three measures of trust: teacher-principal trust, teacher-teacher trust, and teacher-parent trust. The teacher-principal trust scale included items regarding principal visibility and accessibility and confidence in the school administration. The teacher-teacher trust scale included items about respect amongst teachers for providing high-quality instruction, respect for diverse professional opinions and practices, and ability to confide in teachers at the school. The teacher-parent trust scale asked teachers about the extent to which parents knew how to help their children with schoolwork at home and give timely responses to their requests. On average, teachers were most positive regarding teacher-teacher trust and least positive about teacher-parent trust. The survey data showed significantly negative average scores at Mountainside, which was consistent with the fieldwork finding of low trust in the school. The survey data from the other schools also echoed the interview findings of relatively high trust among teachers and between the teacher and principal. While trust of parents was not explicitly addressed in the interviews, it is not surprising that Riverview had the highest teacher-parent trust, given reports of higher parental involvement, which will be discussed in the Connections to External Communities section.

Table 9. Teacher Survey Data on Trust

	LVA		HVA		District Mean (SD)
	Mountainside	Valley	Lakeside	Riverview	
Teacher - Principal Trust	2.31***(-)	3.49***(+)	3.46*(+)	3.22	3.14 (0.79)
Teacher - Teacher Trust	2.92***(-)	3.49*(+)	3.56*(+)	3.49*(+)	3.37 (0.49)
Teacher - Parent Trust	1.84*(-)	2.14	1.94	2.53***(+)	2.13 (0.54)

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools. Note: The scale range is from 1-4.

Care and Positive Relationships between Students and Teachers

Strong, personalized relationships between students and teachers are a vital component of school organizational capacity. Students who have stronger relationships with their teachers are more likely to feel connected to the school, have greater academic motivation and achievement, and display more cooperative and less disruptive behavior, and less likely to feel alienated and drop out.⁴⁴ When students feel cared for, they are receptive to teachers and willing to engage in a reciprocal relationship.⁴⁵ Teachers can increase student motivation and learning by building rapport with their students, caring about them, and being enthusiastic.⁴⁶

Our data suggest that while positive relationships between students and teachers are critically important to

student success, they cannot lead to high student achievement without a systemic focus on academic press. Valley illustrates this challenge. Relationships were strong, relatively widespread, and a specific focus of the school. However, without linking the relationships to academic learning (e.g., high expectations for students' academic work, expectations for teachers' rigor in instruction), the relationships often did not push students beyond attending school and passing their classes and state assessments.

In contrast, the combination of a high floor for students' academic expectation and positive teacher-student relationships allowed Lakeside to successfully implement student ownership and responsibility practices. A primary structure contributing to this success, Learning Time, encouraged teachers and students to build personal, non-academic relationships. Strong personal relationships also supported the success of the school Intervention Committee, where the goal was to understand the root cause of student failure and address problems in a student's life that were inhibiting success. Riverview also had strong and relatively widespread positive relationships between students and adults, although they were stronger in the advanced/honors track. For example, as one student in a focus group described strong relationships with teachers: "the top students at our school are constantly in teachers' rooms, figuring out assignments, going ahead, just trying to get it." Positive relationships alone, however, did not relieve the persistence of "two schools within the school" at Riverview. At Mountainside, positive relationships were seen as important, but such relationships were present only in limited to pockets.

Survey responses from participants at the schools indicated little variation in students' experiences of personalization across the four schools. On the student survey, the personalization scale includes items that asked students how many adults in the school were willing to give extra help with their homework, cared about their academic progress, provided advice about graduation requirements, and helped with personal problems. On average, students reported that about 4-6 adults were willing to help in these ways. Riverview scored significantly lower than the district average on personalization, indicating that students had fewer adults they went to for help. In general, the similar averages across all four schools support the interview data findings that all the case study schools exhibited aspects of personalization even though the focus may have differed.

One teacher survey measure, personalization-social, refers to the extent to which teachers know personal aspects of their students' lives, such as their academic background and aspirations, their home life, and who their friends are. Across the district, teachers were most positive about this aspect of personalization. While the teacher survey data reflected no statistically significant differences in personal relationships between the case study schools, Lakeside had the highest averages for the structural support and extra help scales. This was similar to the interview data that noted a high level of academic support for students at Lakeside.

Table 10. Student and Teacher Survey Data on Personal Relationships between Students and Teachers

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Student survey measure						
Personalization	2.88	2.83	2.85	2.79***(-)	2.85 (1.02)	1 – 5
Teacher survey measure						
Personalization - Social	3.27	3.18	3.18	3.25	3.25 (0.72)	1 - 5

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Faculty and Student Stability

Similar to trust, school stability can exist at the student, teacher, and administrator level and serves as a key facilitating condition for school improvement activities.⁴⁷ Not only does mobility affect the students who are changing schools, but even non-mobile students have lower achievement in schools with high student mobility.⁴⁸ High levels of teacher and leadership turnover can also reduce a school's organizational capacity by impeding the ability to create instructional coherence and eroding relational trust.⁴⁹

Our data suggest that both leader and teacher turnover can negatively impact implementation of the components of effective schools. The particularly high turnover of teachers and leaders at Mountainside made it difficult for leaders to gain the trust of teachers and implement an effective reform agenda. In contrast, Valley had been relatively stable since implementing a turnaround model in which the new principal asked for a three-year commitment from those hired. As much of the academic and behavioral improvement in the school had been credited to the principal, stability in leadership had a clear impact. The two higher value-added schools had a stable core of leaders and teachers, although enrollment growth in Lakeside had led to an increase in new teachers over the past few years. Because of established routines of practice and shared goals in Riverview and Lakeside, their performance trajectories and improvement activities had been stable despite recent turnovers in leadership.

Individual and Collective Teacher Efficacy

Teachers' sense of efficacy—which is a belief that teachers individually and/or collectively have the capability to achieve desired outcomes such as improved student achievement—serves as a form of school capacity and empowerment.⁵⁰ Teachers with a high individual sense of efficacy are more resilient in the face of challenging situations, have more focused instruction, and believe their actions can impact student learning.⁵¹ On the other hand, teachers with low efficacy are more likely to deflect improvement efforts and blame poor performance on students' lack of motivation.⁵² Collective teacher efficacy exists when teachers believe that the faculty as a whole can impact student learning and achieve school-wide goals.⁵³ Collective teacher efficacy is related to student achievement,⁵⁴ possibly because teachers with

high collective efficacy are more likely to build positive relationships and respond positively to school improvement initiatives.⁵⁵

Teachers at Lakeside appeared to have a greater sense of individual and collective efficacy. Whether this contributed to-- or was an outcome of -- the school's success is not clear. This sense of efficacy did, however, support faculty and staff efforts to promote student ownership and responsibility with low-income Hispanic students.

At Riverview, the other higher value-added school, teachers were most likely to report a sense of efficacy with students in honors and AP classes. While many in the school prided themselves on the inclusivity of their honors program, responses from some teachers suggested that they felt less efficacious with minority students not enrolled in honors courses and with their families. An administrator noted the need to narrow gaps between honors and regular classes by increasing student-centered activities/strategies and performance expectations in regular-level courses. Valley also appeared to place more blame on students and families for academic failure, although some teachers in Valley felt capable of supporting students' social and emotional needs. Interviews with teachers in Mountainside suggested little sense of individual or collective efficacy. Multiple participants said their ability both to motivate students academically and to influence student achievement was heavily influenced by factors outside their control.

Table 11 shows the efficacy data from the teacher survey. On average across the district, teachers agreed that they knew how to increase student retention of content covered in class, how to redirect disruptive students, and how to get through to even the most difficult or unmotivated students. While the efficacy mean was highest at Riverview, it was lowest at the other HVA, Lakeside. This finding appears to contradict the interview data finding that teachers at Lakeside had strong individual and collective efficacy. The lower score was driven by teachers at the school being more likely to note "agree" instead of "strongly agree" to survey questions, indicating still generally positive efficacy. It is also important to note that the differences were not statistically significant.

Table 11. Teacher Survey Data on Teacher Efficacy

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Efficacy	3.37	3.39	3.20	3.40	3.34 (0.51)	1 - 4

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Teacher Accountability

To successfully implement strategies of academic press and support, schools need a systemic approach to teacher accountability. This may entail developing both individual and collective responsibility as well as internal mechanisms to ensure teachers are implementing desired practices consistently.⁵⁶ Schools and districts exercise internal accountability by establishing individual responsibilities,⁵⁷ which in turn enable the marshaling of resources to respond effectively to external accountability measures.⁵⁸ The consistent implementation of local expectations and responsibilities requires that leaders hold teachers accountable for implementing practices that align with the shared school-wide vision. This often requires frequent instructional observations and curricular discussions or other mechanisms.⁵⁹

The two higher value-added schools had more systemic approaches to teacher accountability and integrated accountability for students and teachers. For example, teachers were held accountable for also holding students accountable and helping them to succeed. The increased teacher accountability was accompanied by pervasive administrative support. In Riverview, we found evidence across the faculty of a willingness to be accountable for student outcomes to one another or to their broader fields (e.g. AP subject areas), coupled with an openness to investigate new strategies or options. In Lakeside, the role of classroom walk-throughs illustrates the integration of teacher support and accountability. There, teacher observations were part of an ongoing, bilateral dialogue between teachers and leadership, a hallmark feature of the practice. Feedback from observations was looped, with observers asking guiding questions and expecting a response from teachers. In contrast, observations in the lower value-added schools were seen as merely *pro forma* or perfunctory and done for accountability purposes rather than being designed to help teachers grow. Particularly in Mountainside, but to some extent in Valley, there was a sense that administrators used observations to catch teachers making mistakes. Teachers at Valley were largely left alone unless there was a problem.

Data from the teacher surveys indicated that scales related to teacher accountability and principal effectiveness in supporting systemic performance accountability were particularly high in Lakeside and particularly low in Mountainside, supporting many of our assertions drawn from the qualitative data. The teacher accountability construct measures the extent to which teachers feel the following are true: there are consequences for teachers who don't perform well, they get valuable feedback on their instruction, other teachers hold them accountable for their performance, and teachers who don't do well are given opportunities to improve. The principal's effectiveness at supporting systemic performance accountability captures the teacher's evaluation of the principal in holding faculty accountable, advocating for holding students accountable for achieving at high levels, and challenging faculty that do not hold students accountable. Both HVA schools scored higher than their LVA counterparts on teacher accountability. Mountainside had the lowest mean scores across both systemic accountability-related scales, supporting many of our assertions drawn from the qualitative data. Scores for principal support for systemic performance accountability were mixed, for example, with Valley scoring higher than the district average and Riverview similar to the district average. The high regard teachers in Valley had for the principal may contribute to this high rating. Somewhat surprising, given the prior findings about observation and feedback, none of the case study schools were statistically different from the district average in teacher perceptions of instructional observations and feedback.

Table 12. Teacher Survey Data on Teacher Accountability

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Teacher Accountability	2.45***(-)	3.08	3.22*(+)	3.16**(+)	2.98 (0.60)	1 – 4
Principal Effectiveness at Supporting Systemic Performance Accountability	2.20***(-)	3.45***(+)	3.53***(+)	3.21	3.07 (0.82)	1 – 4

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school’s mean scale rating compared to the mean from the district’s other 12 schools.

Safe and Orderly Environment

Schools must have a calm, safe, and orderly environment for the strategies and school-wide facilitating conditions to take root. Indeed, trust, caring relationships, and teacher responsibility require safe and orderly climates where student discipline is handled in a fair and consistent manner.⁶⁰ Schools characterized by safety and order see greater improvements in the essential components of effective schools that contribute to student outcomes.⁶¹ Likewise, a consistent approach to behavior management is a building block for personalization of academic and social learning.⁶²

A safe and supportive disciplinary climate has the potential to facilitate other activities, such as fostering trust. For example, teachers and students trust administrators when they see rules enforced consistently. Lakeside and Riverview demonstrated consistent behavior enforcement, although in Lakeside, discipline/behavior management was integrated into the focus on student ownership and responsibility. For example, the Lakeside Code, which serves as a student code of conduct, focused more on academic and instructional behaviors than discipline or social behaviors. While there was support for addressing small infractions, the strategies often included an academic component, such as completing homework or bringing a book to class. Student behavioral discipline was actively linked to academic discipline; school personnel sought to understand the “root cause” of student academic failure or misbehavior.

As with positive relationships, consistent disciplinary enforcement is necessary, but it cannot promote student ownership and responsibility by itself. For example, at Valley High School, teachers gratefully reported that administrators consistently and fairly resolved discipline problems (facilitating relational trust), and Valley had significantly more disciplinary referrals than any other case study school. The fact that the referral rate had also increased in recent years, reflects the attention given to this by school leaders.

Mountainside lacked consistent disciplinary enforcement and it led to lack of trust between the administration and teachers, as well as between the administration and students. This, in turn, inhibited other efforts to improve achievement.

Several items on the student survey capture aspects of a safe and orderly environment. There are differences by schools, but no clear pattern of differences emerged between the HVA and LVA schools as a group (see table 13). Not surprising given the interview data, students in Riverview reported feeling safer and less bullying. Students in Valley and Lakeside reported more bullying. This is different than the teacher data where teachers at Lakeside reported less bullying than the district average. Students at Mountainside reported feeling less safe which is consistent with the interview data.

Table 13. Survey Data on Safe and Orderly Environment

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Student survey measures						
School Safety	3.11*(-)	3.20	3.19	3.22***(+)	3.18 (0.56)	1 – 4
Bullying	2.40***(-)	2.65***(+)	2.66***(+)	2.48***(-)	2.56 (0.79)	1 - 4
Teacher survey measure						
Bullying/School safety	2.68	2.23	3.20*(-)	3.40	2.36 (0.88)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

The teacher and parent survey also provided data on the safe and orderly environment. In terms of teacher perceptions of the student climate, the only measure available is about bullying/school safety, where teachers in Lakeside reported significantly less bullying compared to other teachers in the district. The bullying items asked parents to indicate whether their child had been bullied at the school or via texting, Internet, or phone. Note that this is not consistent with student reports of bullying as shown above. On average, parent responses across all four schools indicated that their students had been bullied, though none were significantly different from other parents in the district.

There are several indicators in the administrative data that help us understand the school climate for students (Table 14). The four case study schools had similar student attendance rates, although the rates had risen in recent years at the HVA schools so both were slightly higher than at the LVA schools. The HVA schools also had fewer students with disciplinary action, suggesting fewer behavioral concerns. Riverview had seen a marked decrease in disciplinary referrals.

Table 14. Attendance and Disciplinary Behavior for Most Recent Three Years and Change Over Recent Two Years

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Most recent 3 years					
Attendance Rate	90.2%	92.1%	94.1%	93.1%	91.9%
S. w/ "Disciplinary Action"	30.0	22.6	18.5	12.4	17.8
Two-year change					
Attendance Rate	0.5%	-2.2%	0.2%	-0.4%	-0.8%
S. w/ "Disciplinary Action"	-23.5	-3.7	4.1	-10.1	-8.6

Finally, the CLASS-S observations include a measure of behavior management. These data also support the finding that the HVA schools had teachers with higher behavior management ratings than teachers in LVA schools. Further, Mountainside had the lowest behavior management scores, consistent with the interview data.

Table 15. Mean CLASS-S Behavior Management Score by School

	LVA Schools		HVA Schools		Combined
	Mountainside	Valley	Lakeside	Riverview	
Behavior Management	5.05***	5.25*	5.91***	5.61	5.44

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparison tests between each case study school's mean rating compared to the mean from the district's other 12 schools.

Essential Components: Comparisons Between Higher and Lower Value-Added Schools.

The above sections provide the evidence on the main findings from this study. Yet as we described in the introduction, we did not begin this study looking for evidence of student ownership and responsibility. Rather, our work was guided by what we call the essential components of effective schools and the findings described above emerged from this work. In this section, we describe the analytic framework that guided our work and present the evidence we examined on each essential component.

We submit that far-reaching school improvement in high schools is rooted in a set of eight essential components that emerge from the literature on effective schools in general and effective high schools in particular. Schools succeed not because they adopt piecemeal practices that address each of these components, but rather because they organize their collective practices into a coherent and cohesive framework of aligned practices. In effective schools, these components are woven into the school's organizational fabric to create internally consistent and mutually reinforcing reforms; their success is explained by more than the simple sum of their parts. The conceptualization of the Center's framework suggests that these essential components can work together in effective high schools to create deep connections, engagement, and attachment for both adults (leaders, teachers, staff) and students, to the work, norms, and outcomes of high schools. Similarly, the inability to effectively implement these components to high quality and high frequency can explain alienation, disengagement, and lack of effort in high schools for students and adults.⁶³ The eight components are organized into two broad categories. First are the "anchors." These two components hold together the other six and cut across them. The first is Learning-centered Leadership, which entails the extent to which leaders hold a vision in the school for learning and high expectations for all students and focus all leadership.⁶⁴ The second is Rigorous and Aligned Curriculum, which focuses on the content that secondary schools provide in core academic subjects, including both the topics students cover as well as the cognitive skills they must demonstrate in each course.⁶⁵ While none of the components in and of itself is sufficient for an effective high school, learning-centered leadership and rigorous and aligned curriculum are the aspects upon which the other components can be built and, in an effective school, hold strong influence over how the other components are enacted. The remaining essential components constitute the necessary elements to develop engagement, commitment, and shared norms and values. The third component is Quality Instruction, the teaching strategies and assignments that teachers use to implement the curriculum and help students to reach high academic standards.⁶⁶ The fourth is Personalized Learning Connections, the development of strong connections between students and adults that allow teachers to provide more individual attention and talk with each student regarding unique circumstances and learning needs⁶⁷ as well as developing students' sense of belonging.⁶⁸ The fifth essential component is a Culture of Learning and Professional Behavior. This refers to the extent to which teachers take responsibility for events in the school and their students' performance, and the degree to which they collaborate in their efforts through such activities as school-wide professional development.⁶⁹ The sixth component is Connections to External Communities, the ways in which effective secondary schools establish meaningful links to parents

and community organizations and relationships with local social services, as well as student work experiences in the community.⁷⁰ Another component is Systemic Use of Data, including the use of data to inform classroom decisions and multiple indicators of student learning.⁷¹ The final essential component is Systemic Performance Accountability, which includes external and internal structures that hold schools responsible for improved student learning. External accountability refers to the expectations and benchmarks from state and national bodies, while internal accountability consists of district- and school-level goals.⁷² This section presents findings from our study focused around these essential components. We first summarize the prior literature on each essential component and then describe key differences between HVA and LVA schools with respect to that component, using interview, survey, administrative, and observational data.

Learning-centered Leadership

Learning-centered leadership focuses on cultivating, supporting, and improving the essential components of effective schools. Prior studies suggest links to increases in students' learning when leaders organize their schools by articulating an explicit school vision, generating high expectations and goals for all students, and monitoring their schools' performance through regular use of data and frequent classroom observations.⁷³ Principals' effects on student learning are also likely mediated by their efforts to improve teacher motivation and working conditions⁷⁴ as well as the efforts to hire high-quality personnel.⁷⁵ Finally, research suggests that principals can play important roles in implementing instructional reforms. Quinn⁷⁶ found that teachers more frequently engaged in new instructional strategies when their principals actively worked to secure curricular materials and acted as instructional resources for instructional reforms.

Following a distributed perspective of leadership,⁷⁷ effective learning-centered leadership transcends one person or any specific role, and is visible across multiple actors and structures in schools. (Our definition of leaders in these schools includes administrators, lead content teachers, department chairs, and leaders of other groups such as professional learning communities.) Effective learning-centered leadership is "coordinated and patterned,"⁷⁸ aligned and consistent with the other systems and components within the school.

The case study data revealed that effective learning-centered leadership in the Fort Worth ISD context is characterized by a number of practices and approaches:

Shared Understanding and Commitment to Goals

Both higher value-added schools, Lakeside and Riverview, had clear goals and the interview data suggest that the leadership drives the practices, policies, and structures. Indeed, teachers and staff had a shared understanding of the principal's goals. There was cohesiveness around the goals and, equally important, school-wide, systematic approaches for how to achieve them. In Lakeside, for instance, there was a clear link between the principal's goal of students taking responsibility for learning and the structures (e.g., the Lakeside Code) that supported that goal. In contrast, Mountainside's lack of cohesion around a sense of shared purpose and goals was evidenced by fragmented structures and communication and scant evidence of systematic efforts to accomplish these stated objectives. Teachers in Mountainside complained about lack of focus and vision and the "Christmas tree

approach,” with a large number of unrelated programs and policies. In Valley, participants described many different school-wide goals, with less agreement among participants than was evidenced in the HVA schools.

Openness to Dialogue and Teacher Involvement in Decision-Making

Teachers and administrators in both Lakeside and Riverview described their schools as having a “family” culture. Leadership in Lakeside and Riverview (administrators, department heads) indicated that teachers were part of decision-making processes, and that teachers had input in decisions, although Riverview’s larger size made it seem more hierarchical while Lakeside had more direct engagement with teacher input. This type of open dialogue reinforces a culture of trust and mutual respect. Valley also had strong connections between principals and teachers and buy-in to the principal’s vision, a leadership approach that acknowledges the importance of a shared culture. In contrast, Mountainside’s leadership did not foster open dialogue, trust, and teacher respect; the principal of Mountainside was referred to as a micromanager.

Principals and Other Leaders Observe Classrooms to Focus on Quality Instruction.

Instructional leaders spend time in classrooms and explicitly talk about expectations for classroom instruction, and provide feedback to teachers. The most salient focus of the leadership in the higher value-added schools is around quality instruction. Leaders spend time in classrooms, not just to evaluate, but as a mechanism to focus the school on the vision and goals of improving instruction. In Lakeside, both teachers and administrators commented about the high frequency of classroom walkthroughs and the helpfulness of resulting feedback. In Riverview, administrators were more likely to talk about classroom observations than the teachers, but both mentioned visits by the principal with emphasis on particular types of instruction. Multiple teachers, for example, indicated that the principal had recently talked with teachers about several topics, including the unsuitability of worksheets for instruction and the expectation for teachers to be present at the front of the class for about 10 minutes before diversifying instruction. The instructional focus and feedback role of classroom observations was not evident in Mountainside, where some teachers questioned the validity and usefulness of feedback. Valley teachers also felt they did not receive adequate feedback about their instruction.

Distributed Leadership

The administrative structures in the higher value-added schools, as well as at Valley High School, supported a coherent and shared focus on expectations for improving instruction. Through common planning time, departmental meetings, and the roles of lead content teachers (LCTs) and assistant principals, leadership teams could reinforce improvement goals. The LCTs, for example, arose from a district initiative to provide content-based expertise in their area and act as liaisons with the district content specialists who serve as resources for the core tested subjects. LCTs are classroom teachers in core content areas who are given additional release time to provide support to teachers in their content areas. In addition, the roles and responsibilities were carefully articulated to support the vision and goals of the school. Structures supported academic *and* social learning goals. In Valley for example, certain structures supported the focus on developing professional collaboration, including 9th- and 10th-grade teachers that were teamed by student groups (e.g., honors, regular, special education,

English language learners). Mountainside, however, had a breakdown of distributed leadership as evidenced by inconsistent procedures and processes, a lack of order in the school, and a lack of clarity in roles and responsibilities, such as inconsistent disciplinary actions.

Quantitative Data

The teacher survey data on leadership supports the broader themes that have emerged from the interviews (see Table 16). Teachers from Lakeside, Riverview, and Valley high schools, for instance, rated the coherence of the school’s instructional program and principal effectiveness at supporting quality instruction as higher than the district average. Instructional program coherence includes items that capture the coordination and continuity of programs, curriculum, instruction, and learning materials within the school. The principal’s effectiveness at supporting quality instruction scale is an evaluation of their principal’s effectiveness at maximizing instructional time, discussing instructional strategies, and monitoring instructional quality. For Valley, the mean was significantly higher than the mean for the rest of the district. This finding is consistent with the open dialogue and distributed leadership witnessed at Valley High School. The teacher survey results support the findings from Mountainside High School, where the scale means were significantly lower than the district means across both leadership indicators.

Table 16. Teacher Survey Data on Leadership

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Instructional Program Coherence	2.04***(-)	2.80*(+)	2.88*(+)	2.87***(+)	2.63 (0.63)	1 – 4
Principal Effectiveness at Supporting Quality Instruction	2.33***(-)	3.39***(+)	3.21	3.11	3.00 (0.68)	1 – 4

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school’s mean scale rating compared to the mean from the district’s other 12 schools.

Effective learning-centered leadership is distributed leadership, with leaders consistently focused on the mission and goals. The culture of the school encompasses both high expectations and supports to reach those expectations. The supports are primarily in the form of feedback from classroom walkthroughs and distributed leadership structures where instructional improvements can be addressed, a culture where teachers are respected and listened to, and structures and processes that are aligned with the goals and consistently applied. Principals are visible drivers of these elements of effective leadership.

Rigorous and Aligned Curriculum

Rigorous and aligned curriculum focuses on the content that schools provide in core academic subjects⁷⁹ and is a second anchor that cuts across the other components. A rigorous curriculum is intellectually challenging, covers broad and deep content, and prepares students for college and careers. Curricular alignment addresses the degree to which curriculum standards, curriculum frameworks, and assessments work together at district, school, and classroom levels.⁸⁰ Further, it implies a strong link among objectives, assessments, and instructional activities and materials.⁸¹ On the whole, high school curricula are driven by state standards, as required under No Child Left Behind.⁸² Research on curriculum at the high school level centers around differences between vocational/technical curriculum or remedial courses and college preparatory curriculum, case studies of implementing new packaged curricula, the effects of increasing curricular requirements for graduation, and access to curriculum, specifically advanced courses, for different groups of students.

There do not appear to be significant differences between HVA and LVA schools in terms of curriculum, or alignment, as these elements were defined by the state, provided by the district, and implemented similarly across the schools. While some faculty at one of the schools reported that they wrote some of the curriculum used district wide, the curricular materials made available to all four schools by the district were identical.

Alignment

All four schools used the Fort Worth ISD Curricular Frameworks as their primary source of curriculum and teachers tried to stay “on the same page” with each other and/or with the pacing guides provided by the district. Across the four schools, teachers did report choosing different activities than what was recommended in the Curricular Frameworks, but still adhered as much as possible to the content and learning objectives. When alignment is interpreted as whether the curriculum (lessons, activities, objectives) is aligned to the state standards (Texas Essential Knowledge and Skills, or TEKS) and assessments (STAAR and TAKS), the data suggest no differences among schools. Very little of the qualitative data speaks to whether the activities and lessons teachers used during class—either within or beyond the Curricular Frameworks—were aligned with the TEKS standards. Teachers described following the district Curricular Framework, with the implicit assumption that this meant they were aligned with the TEKS. The most significant form of misalignment with the Curricular Frameworks were statements heard across the schools, but particularly in Lakeside, Mountainside, and Valley, about the quick pace of the Frameworks. When alignment is interpreted as the degree to which teachers are aligned with each other, all four schools showed similar patterns of expectation and flexibility, in which teachers needed to be generally in line with the pacing of the Curricular Framework and with each other. No school’s teachers were free to completely disregard the district’s Curricular Frameworks, nor did any school require every teacher in a given subject to teach the same lesson on the same day or face consequences for being off-pace. In all four schools, common planning time and regular Curriculum Based Assessments (CBAs) facilitated alignment between teachers.

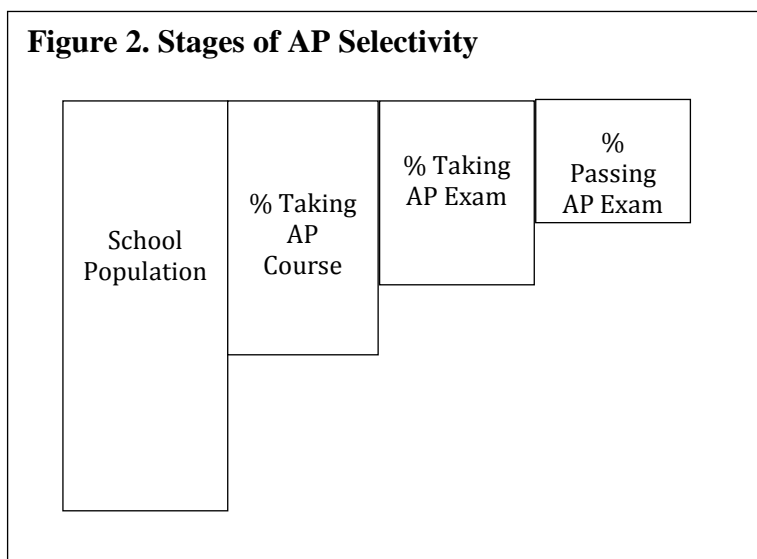
Rigor

In the qualitative data, it appears that the HVA schools offered more Advanced Placement/honors courses and made more concerted efforts to encourage students to take advanced courses than the LVA schools. It is hard to distinguish whether this was the result --or a cause—of their HVA nature. Similarly, Mountainside, which offered the fewest advanced courses, was also significantly smaller, making it difficult to determine whether rigor or staffing issues were at the heart of this difference. While personnel at all schools discussed the need for rigor, there were differences in the instructional rigor and academic press between higher and lower value-added schools. Both HVA schools had levers to push for high expectations and rigor throughout the school. Riverview used its success with AP/honors courses to push more students into those courses while also keeping them rigorous. Lakeside used the Lakeside Code, Learning Time, and the focus on student responsibility to try to enforce high expectations in all classes. In contrast, Valley and Mountainside did not exhibit high expectations and had a culture of multiple chances that lowered expectations. Academic press was lower or non-existent at LVA schools compared to HVA ones. Lakeside and Riverview both found ways to resolve the tension between supporting students and holding them accountable in ways that did not lower rigor. The Lakeside Code and related structures did this in Lakeside. In Riverview, the press largely came from parents.

Quantitative Data

The district provided student-level data on course enrollment, allowing us to consider whether students are enrolling in more advanced courses than previously as a measure of rigor. We consider three types of advanced courses: Advanced Placement (AP) courses, honors courses, and any other course with “advanced” in its name. The AP data noted whether students took the AP test and whether they passed.

We first consider AP course enrollment, test-taking, and pass rates. There are several stages of selectivity in AP data, represented in Figure 2. Out of a school’s entire population, only some students take an AP course, and only a subset of those students take the AP exam. Likewise, only some exam-takers pass. Thus, care must be taken when comparing AP pass rates across schools to consider the selection of the students who take the exam.



As is evident in Table 17, the HVA schools were more successful in getting students through each of these stages of AP selectivity. Not surprisingly, given the fieldwork, Riverview had the highest percentage of students taking an AP course and passing an AP test. Lakeside had a relatively low percentage of students taking an AP class, although those students were slightly more likely to take the test than at Riverview. Both HVA schools had higher percentages of students passing AP tests than the LVA schools. At Valley, an increase in AP test-taking and passing was consistent with findings of improvement in the fieldwork data. Lakeside also had recently increased the percent of AP testers passing the test.

Looking at patterns of student enrollment in honors and other advanced courses revealed few differences, although the LVA schools appeared to have recently decreased in this area. Riverview had by far the largest participation rates in any kind of advanced class. Lakeside’s three-year average was similar to that of the LVA schools for participation in any advanced or honors class but much higher for measures related to Advanced Placement. Riverview has a total of 72% of students taking any advanced course (AP, honors, other advanced course), compared to about 51% in the other three schools, and although Lakeside’s honors enrollments had increased substantially in the last two years.

Table 17. Course-Taking Patterns for Most Recent Three Years and Change over Time

	LVA Schools		HVA Schools		District Mean
	Mountainside	Valley	Lakeside	Riverview	
Most recent 3 years					
% Taking any advanced class	51%	50%	53%	72%	58%
% Taking Honors	47	45	48	70	51
% Taking AP Class	20	21	14	34	23
% AP students who take the exam	31	38	55	53	42
% of AP testers who pass	11	12	25	65	28
Two-year change					
% Taking any advanced class	5%	-8%	10%	-1%	8%
% Taking Honors	4	6	13	-1	7
% Taking AP Class	-6	5	4	1	5
% AP students who take the exam	-2	7	3	2	5
% of AP testers who pass	-6	17	16	0	6

Note: These percentages represent the percent of all students in the school, although the availability of AP courses is not even across grades. The data on the most recent three years is an average of 2008-09, 2009-10, and 2010-11. The change over time data reflect changes from 2008-09 to 2010-11.

The teacher survey data provide additional evidence of these differences in rigor. It is important to note that, in some instances, survey data overlap or complement qualitative data, while in other instances survey data supplement the interview data by addressing different pieces of the components.

The teacher survey data supplement the interview data because questions of postsecondary expectations and college preparation were not fully addressed in the interviews. Questions about postsecondary expectations capture whether teachers expect their students to go to college or attend postsecondary training and whether they think students themselves are planning to do so. Teachers in the LVA schools had significantly lower postsecondary expectations for their students than the district average. Teachers at Riverview had significantly higher expectations compared to other teachers in the district, agreeing, on average, that they expected their students to go to college or attend postsecondary training.

Table 18. Teacher Survey Data on Rigorous and Aligned Curriculum Scales

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Postsecondary Expectations	2.34*(-)	2.42**(-)	2.56	3.04***(+)	2.69 (0.78)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

In the student survey data, the closest proxy for rigor is school-wide future orientation. This measure includes whether all students are encouraged to go to college and think about their future and whether teachers pay attention to all students, not just the top performers. There was some variation by school, though the differences in the mean scores were slight. The significantly lower average at Riverview indicated the general feeling that lower track students were not pushed and held to the same standard as the higher track students. The significantly higher average at Valley indicated that students were somewhat more positive about teachers helping **all** students to learn, plan for college, and stay in school.

Table 19. Student Survey Data on Rigorous and Aligned Curriculum

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
School-Wide Future Orientation	2.89	2.94***(+)	2.89	2.88***(-)	2.90 (0.53)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Quality Instruction

Quality Instruction encompasses the instructional strategies that teachers use to achieve high standards for all students. Much of the research discussing the quality of instruction at the high school level is descriptive, either explaining programs that have been developed and implemented to increase student achievement, particularly in math, or case studies describing the practices of effective teachers. Trends in this research cluster around common practices and specific classroom foci. Common practices include collaborative group work and inquiry-based learning (Staples, 2007), formative assessment (Brown, 2008), scaffolding, and introducing new concepts concretely through direct instruction in which each concept is broken down into small parts, taught, and then assessed for mastery before the teacher moves on (Alper, Fendel, Fraser & Resek, 1997). Foci include creating structures and classroom climate that allow students to try and fail without negative consequences (Alper, et al., 1997), making content not only relevant for real life, but important, and setting high expectations for all students (Boaler, 2008).

The vast majority of more recent work on the quality of instruction has focused on developing frameworks and corresponding classroom observation rubrics. The framework guiding the Center's work on conceptualizing the quality of instruction in high schools is the CLASS-S. The CLASS-S articulates domains and dimensions of quality instruction, in which dimensions describe various aspects of each domain.⁸³ The three core domains of the CLASS-S are Instructional Support, Emotional Support, and Classroom Organization, with a fourth domain, Student Engagement, as an outcome. Instructional Support includes teachers' demonstration of their content understanding, the methods they use to facilitate student use of higher-order thinking skills, the quality of feedback teachers provide, and their use of instructional dialogue to facilitate content understanding. Emotional Support largely overlaps with the academic engagement aspect of Personalized Learning Connections and includes measures of positive and negative classroom climate, the teacher's sensitivity and responsiveness to student needs, and the teacher's regard for adolescent perspectives, i.e., the degree to which teachers provide opportunities for autonomy and leadership as well as relevant applications of content. Finally, Classroom Organization includes behavior management, productivity or the maximization of learning time, and teachers' use of a variety of instructional learning formats to maximize student engagement.

This framework, as well as others, suggest that high-quality instruction is rooted in a notion of engaged learning (instructional dialogue, feedback, responsiveness), whereas low-quality instruction consistently allows students to be passive, and disengaged as learners (seatwork, receivers of information, and limited accountability for learning).

Interview Data

The interview data provide insight into what the school stakeholders consider quality instruction. Across the four schools, student engagement was commonly considered important for high-quality instruction. However, in the higher value-added schools, especially Lakeside, engagement was linked to student responsibility and active participation in lessons, whereas in the lower value-added schools, it was more often linked to specific strategies such as real world connections or bell-to-bell instruction. The first set of practices are centered on creating change by encouraging students to take ownership of their learning, whereas the second set include pedagogical techniques that may not have as great an impact on student engagement. For example, at the higher value-added schools, school leaders suggested that quality instruction consisted of student-centered instruction to ensure that students could perform independently. In contrast, at the lower value-added schools, there was concern that the teachers, not the students, did most of the work and thinking in the classroom with a heavy focus on remediation.

Several stakeholders at the higher value-added schools also named higher-order thinking skills as high-quality instruction. Teachers mentioned using questioning strategies or problem solving activities (discovery learning, inquiry-based instruction) to reach higher-order thinking skills, although most also indicated that mastering this was a continuing struggle. Teachers in the lower value-added schools attributed their students' academic struggles to their lack of background knowledge rather than to the quality of instruction. For instance, at Mountainside, teachers questioned the feasibility and appropriateness of teaching critical thinking to students with poor educational foundations. They also cited student misbehavior as a challenge for rigorous instruction. At Valley, teachers also mentioned having difficulty individualizing instruction and directing instruction toward the mid- to lower-level students. Teachers primarily relied on tutoring to provide individualized instruction and work with struggling students. Interview data from the lower value-added schools revealed a lack of understanding of how to foster higher-order thinking skills and what rigor actually "looks like" in the classroom.

Both higher value-added schools seemed to value and encourage cooperative learning, with most teachers at Lakeside and several at Riverview mentioning it as a high-quality instructional strategy. At the LVA schools, cooperative learning was emphasized in pockets, such as the AVID and ROTC programs, but was generally less pervasive than in the higher value-added schools. At Mountainside, several teachers reported hesitation to use collaborative activities due to concerns that students' social skills would inhibit group work, and that group-centered assignments might encourage less engaged students to rely on one student doing all of the work.

In general, lower valued-added schools seem to focus more on specific strategies or forms of quality instruction such as math practice sheets rather than on the functions of high-quality instruction such as helping students become independent learners.

CLASS-S Data

To assess the quality of classroom instruction across our four case study schools, we targeted 9th and 10th-grade English/language arts, mathematics, and science classes. Researchers videotaped participating teachers' instruction during the same class period on two consecutive days during the first and second visits. Make-up observations occurred during the third visit. Thus, most teachers were observed four times. Videographers logged the sequence of activities that occurred in the classroom, collected student assignments, and recorded student demographics.

The CLASS-S rubric was used to code the observations. CLASS-S includes four domains: Emotional Support, Organizational Support, Instructional Support, and Student Engagement. The Emotional Support domain includes Positive Climate (which reflects the emotional connection and relationships among teachers and students), Negative Climate (encompasses the overall level of negativity among teachers and students in the class), Teacher Sensitivity (which reflects the teacher's responsiveness to the academic and social/emotional needs and developmental levels of individual students and the entire class), and Regard for Adolescent Perspective (which focuses on the extent to which the teacher is able to meet and capitalize on the social and developmental needs and goals of adolescents by providing opportunities for student autonomy and leadership). The Organizational Support domain includes Behavior Management (which focuses on the teacher's use of effective methods to encourage desirable behavior and prevent and redirect misbehavior), Productivity (which considers how well the teacher manages time and routines so that instructional time is maximized), and Instructional Learning Formats (which focuses ways in which the teacher maximizes student engagement). The Instructional Support domain consists of Content Understanding (which refers to both the depth of lesson content and the approaches used to help students comprehend the framework, key ideas, and procedures), Analysis and Problem Solving (which assesses the degree to which the teacher facilitates students' use of higher-level thinking skills), and Quality of Feedback (which looks at the way the teacher's feedback expands and extends learning and understanding). Definitions of the domains and dimensions can be found in Appendix B, along with additional details on the classroom observations.

The CLASS-S data indicate that, across all schools, instructional quality was at a relatively low level, particularly in Instructional Support domain. Despite this overall finding, on every domain and dimension of the CLASS-S, teachers' classrooms in higher value-added schools scored better on the CLASS-S, with many differences being statistically significant. For example, HVA schools had teachers who reached higher levels of analysis and problem solving, focused more on the content students were to understand, had higher quality feedback, and more robust instructional dialogue. HVA schools also had higher student engagement than the LVA schools. Across all four schools, ratings tended to fall in the middle of the CLASS-S rubric, with the exception of the Analysis and Problem Solving dimension, which was in the low end, and Negative Climate, which was in the high end (representing a lack of negative climate).

Table 20. CLASS-S Scores by School

	LVA Schools		HVA Schools		All case study schools
	Mountainside	Valley	Lakeside	Riverview	
<i>Emotional Support</i>					
Positive Climate	4.40***	4.91	4.93	4.94	4.82
Negative Climate	6.24	6.17***	6.53**	6.63***	6.36
Teacher Sensitivity	4.34***	4.69	4.96**	4.96*	4.74
Regard for Adolescent Perspectives	2.90***	3.23	3.49*	3.43	3.26
<i>Organizational Support</i>					
Behavior Management	5.05***	5.25*	5.91***	5.61	5.44
Productivity	5.07**	5.15**	5.68***	5.56*	5.34
Instructional Learning Formats	4.33*	4.40*	4.76*	4.79**	4.55
<i>Instructional Support</i>					
Content Understanding	4.49	4.37*	4.60	4.68	4.52
Analysis and Problem Solving	2.42**	2.58	3.03***	2.78	2.70
Quality of Feedback	3.85	3.75*	4.26***	3.85	3.91
Instructional Dialogue	3.18	3.23	3.57**	3.22	3.30
<i>Student Engagement</i>	4.39**	4.58	4.83*	4.88*	4.67

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean rating compared to the mean from the other schools combined.

Because research on tracking in high schools suggests that higher-track classes tend to have higher-quality instruction than lower-track classes, we wanted to assess whether this was occurring in our cases study schools, as well as whether higher value-added schools “compressed” the instructional quality between their higher- and lower-track classes more than lower value-added schools. Observed class periods were selected to ensure a sufficient number of honors and advanced classes were included in each school.

As shown in Table 21, in both higher and lower value-added schools, there were significant differences between advanced and regular track classes on all CLASS-S domains. In the higher value-added schools, we found significant differences on most dimensions. However, in higher value-added schools, there were a few dimensions where we did not find significant differences between tracks: quality of feedback, instructional dialogues, and teacher sensitivity, suggesting the HVA schools may have compressed variation within the school. On all domains and dimensions, where significant

differences existed, CLASS-S scores were higher in advanced classes.

Table 21. Differences in CLASS-S Scores between Advanced and Non-advanced Classes within Each Case Study School

	LVA		HVA	
	Mountainside	Valley	Lakeside	Riverview
<i>Emotional Support</i>				
Positive Climate	0.38	0.35*	0.44*	0.68***
Negative Climate	0.19	0.52***	0.17	0.39**
Teacher Sensitivity	0.34	0.26	0.14	0.20
Regard for Adolescent Perspectives	-0.06	0.59***	0.03	0.58**
<i>Classroom Organization</i>				
Behavior Management	0.25	0.75***	0.80***	0.82***
Productivity	0.04	0.5**	0.50***	0.31
Instructional Learning Formats	0.16	0.48**	0.53***	0.21
<i>Instructional Support</i>				
Content Understanding	0.08	0.69***	0.25	0.25
Analysis and Problem Solving	-0.03	0.73***	0.60**	0.32
Quality of Feedback	0.12	0.34	-0.05	0.47
Instructional Dialogues	-0.17	0.84***	-0.07	0.37
<i>Student Engagement</i>	0.52**	0.61***	0.91***	0.65**

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$ denotes a statistically significant between tracks.

Student Shadowing Logs

Student shadowing data were collected using a standardized protocol during the first week of May. A variety of information about student engagement and interaction was recorded every five minutes throughout the school day. Between eight and 10 students were shadowed for a day in each school.

Data from our student shadowing logs suggest that there were significant differences between our higher and lower value-added schools on the majority of indicators. Student engagement varied by school, according to the observations, with Valley students more often actively engaged in the activity at hand and students in Lakeside most often not engaged. This finding in Lakeside is inconsistent with both the fieldwork and CLASS-S data that suggested that adults in the HVA schools focused their attention on student engagement.

There were also significant differences in the frequencies of different types of instructional activities that engaged students. Across all the schools, students were most likely to be expected to engage in individual work (24%), followed by listening to direct instruction (21%). There were differences between schools in the activities in which teachers expected students to be engaged during the shadowing observations. Such activities in Mountainside were more to involve whole class discussion

and less likely to involve direct instruction. Students in Riverview were less likely to be assigned individual work.

Table 22. Shadowing Results for Four Core Subjects on Expected Classroom Activities

	LVA Schools		HVA Schools		All case study schools
	Mountainside	Valley	Lakeside	Riverview	
Student has an expected task	96.9%	97.3%	92.4%***	96.8%	96.0%
Engagement					
Actively engaged	22.4%	30.0%***	19.8%*	18.3%*	22.2%
Passively engaged	59.3	54.8***	56.3*	63.7*	59.0
Not engaged	18.3	15.2***	24.0*	18.0*	18.9
Type of Expected Activity					
Whole class discussion	19.6%***	10.3%	9.5%*	11.7%	13.1%
Direct instruction	15.0***	16.6*	23.1	28.2***	21.1
Group/pair work	15.3	23.3**	13.3*	17.9	17.3
Individual work	29.7**	26.3	29.8*	14.7***	24.4
Test/Other academic	12.9	13.3	10.1*	18.4**	14.0
Transition/Non-academic/No task	6.8	7.3	13.6***	8.7	9.0
Other/unclear	0.8	3.0***	0.6	0.5	1.1

*School estimate has a statistically significant difference from all other schools combined at $p < .05$

**School estimate has a statistically significant difference from all other schools combined at $p < .01$

***School estimate has a statistically significant difference from all other schools combined at $p < .001$

Note: These figures refer to percent of five-minute observational segments. For example, in 22.2% of observational segments, the student was observed to be actively engaged.

Personalized Learning Connections

Personalized Learning Connections are strong connections between students and adults that allow teachers to provide more individual attention to their students.⁸⁴ Personalized learning connections also refer to developing students' sense of belonging to at school.⁸⁵ Such connections can fall on a continuum from strong and robust, leading to connectedness, to weak and non-existent, leading to alienation.⁸⁶

Participants across all four case study schools considered building and sustaining strong adult-student relationships a priority for fostering student engagement and success; however, actual responses about adult-student connections differed. Participants at Lakeside reported extremely positive teacher and student chemistry and described the Lakeside Code and Learning Time as the overarching mechanisms promoting such connections. (See the Promising Practices section below for full descriptions of these practices.) The Code and Learning Time were consistent with the school's

dominant focus on academic responsibility—though students also came to hang out with teachers and get to know them socially. Essentially, Learning Time provided diverse occasions for personalization for academic and social learning—with an evident bias toward academics. At Riverview, there was evident leadership in the efforts to meet different students’ needs. The administration at Riverview reportedly based employment on teachers’ commitment to activities that would help develop strong adult-student relationships. This strategy appeared to pay off as faculty reportedly sponsored many clubs and encouraged student involvement. Participants seemed committed to the idea that relationships mattered for low-income students who would “go a mile for a teacher.” Yet students suggested that the nature of these relationships followed the “school within a school” pattern of different treatment for low- and high-achieving students. This might help explain the principal’s goal of closing the gap socially as well as academically.

Valley had a concerted focus on addressing social development needs but only a stated attention to academics. Teachers were expected to “do what it takes” to develop relationships with their students, including working outside class—and faculty seemed to have solidly bought into this personalization goal. Multiple participants, however, noted low levels of rigor at the school. Some teachers seemed to emphasize developing relationships with students, rather than making academic demands. At Mountainside, only some school personnel were intentional and systematic about building and maintaining relationships. The later dissolution of the school’s mentoring program belied participants’ view that relationships with kids were a key aspect of practice. Diminished personalization practices also seemed to be a function of the school’s significant teacher turnover rate. As at Valley, personalization for academic and social learning also involved giving students multiple chances because of their difficult personal circumstances.

All schools appeared to have some measure of academic and social structures to foster personalized connections. These structures were “necessary but not sufficient,” however, to meet the needs of low-performing students and low-performing schools. At Lakeside, Learning Time, homeroom, and Intervention Committee (a student support team that targeted students who were failing) served as academic structures that facilitated student-teacher relationships, within the context of cultivating a student culture of learning. In many subject areas, very high percentages of the Hispanic students and those on subsidized lunches were proficient. Riverside also had several academic structures to benefit students: freshman camp, Plato (a standards-based online learning program), JROTC and homeroom. However, these structures did not seem integrated into the school culture and instead were either dysfunctional or targeted at subgroups.

Valley organized school personnel (coaches and teachers including grade-level teams) to provide formal structures for building personalized connections (via monitoring, home visitation, etc.). Support programs at Mountainside included JROTC, athletics, and a community program targeted at African American males. However, both lower value-added schools, showed less consistent, systemic focus on the academic side of personalization. Valley appeared to do a much better job than its counterparts in bringing these structures to bear on the relational side for most students. At Mountainside, general failure on both facets of the personalization index may have reflected a failure of leadership as well as dysfunctional administrative and disciplinary processes.

Responses from participants at the schools indicated that students’ engagement, sense of belonging, and/or school pride differed across the four schools. For instance, the level of student involvement in extracurricular activities at Lakeside suggested that only a minority of students participated and benefitted from these opportunities. This was consistent with interview data, which revealed little direct report of students’ sense of belonging or pride, despite high participation in tutoring (Learning Time) at Lakeside. At Riverview, student engagement appeared related to students’ academic levels: those in higher-level classes reported greater pride than their counterparts in the lower group. Participants also reported that a few students were involved in multiple activities, many participated in some activities, and about a third did not participate at all—due to family and work obligations after school. At Valley, while teachers perceived that many students considered the school a home and felt connected to it, teachers also believed school spirit was lacking. This seeming inconsistency may have reflected the persistence of the school’s negative image due to its history, despite recent efforts to “reinvent” itself. At Mountainside, participants reported that students’ sense of belonging arose both from the school’s historical connection to the local community and the students’ lack of positive adult relationships outside of school. The interview data suggested that only a small number of students participated in extracurricular activities and benefitted from the apparently limited adult-student connections.

Several teacher survey items captured personalized learning connections. These items were broken down into three scales. Personalization-Structural Support included items indicating how often teachers organized school supports, such as parent-teacher meetings and referrals to community organizations, for students who were struggling. Personalization-Extra Help referred to the extent to which teachers reported that they or other staff members provided extra help to struggling students. Personalization-Social referred to the extent to which teachers knew details about their students’ personal lives, such as their academic backgrounds and aspirations, their home life, and identities of their friends. Across the district, teachers were most positive about this aspect of personalization. While the teacher survey data reflected no statistically significant differences in personalized learning connections among the case study schools, Lakeside had the highest average on the Structural Support and Extra Help scales, although none of the differences were statistically significant. These results were similar to the interview data, which noted a high level of academic supports for students at Lakeside.

Table 23. Teacher Survey Data on Personalized Learning Connections

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Personalization - Structural Support	3.09	3.11	3.16	3.10	3.08 (0.45)	1 - 4
Personalization - Extra Help	2.78	2.91	3.03	2.92	2.83 (0.69)	1 - 4
Personalization - Social	3.27	3.18	3.18	3.25	3.25 (0.72)	1 - 5

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Several items on the student survey also captured personalized learning connections. The personalization scale included items that asked students how many adults in the school were willing to give extra help with homework, cared about their academic achievement, provided advice about graduation requirements, and helped with personal problems. On average, students reported that about four to six adults were willing to help them in these ways. The student sense of belonging scale ascertained the extent to which students viewed people in the school as a family, felt like they fit with the school, and felt that people cared if they were absent. Most students agreed with these items. Results for Riverview were significantly lower than the district average on personalization, indicating that students had fewer adults they went to for help, and significantly higher on student sense of belonging. In general, the similar averages across all four schools supported the interview data findings that all the case study schools exhibited aspects of personalization even if the focus differed.

Table 24. Student Survey Data on Personalized Learning Connections

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Personalization	2.88	2.83	2.85	2.79***(-)	2.85 (1.02)	1 – 5
Student Sense of Belonging	2.74	2.74	2.75	2.77***(+)	2.75 (0.52)	1 – 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

In addition to the above scales, the survey asked students about participation in various school programs and the school personnel with whom they discussed various issues, including personal issues. The programs most commonly cited across the four schools were tutoring, sports, and activities or clubs (see Table 25). Lakeside students were most likely to attend tutoring, which was not surprising given the school's emphasis on Learning Time, and less likely than average to participate in sports. At Riverview, community service was the top student activity, consistent with what emerged in the fieldwork. Students in Mountainside and Riverview were more likely to participate in school leadership, perhaps indicating a stronger presence of a student government structure in those schools.

Table 25. Student Participation in School Programs

	LVA		HVA		District mean
	Mountainside	Valley	Lakeside	Riverview	
Tutoring	58%***	43%*	75%***	26%***	44%
Internship	2	1	2*	1**	1
Community Service	18**	10***	13**	24**	16
Sports	42*	41	35***	41*	40
Activities or Clubs	30*	23***	26***	34***	45
School Leadership	12***	5***	7**	13***	8

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Most students did not report talking to adults at school about personal or family issues or problems (see Table 26), with the exception of conversations with a teacher or counselor about getting a job. Students in Mountainside were more likely than students in other schools to talk to a coach about personal issues.

Table 26. Percentage of Students by School Who Talked to Various Adults about Personal or Family Issues or Problems

	LVA		HVA		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	4%***	2%***	1%***	2%***	2%
Counselor	20***	13***	18***	12***	15
Teacher	22***	18	21***	12***	17
Coach	11***	7	5***	6	6
Other	15**	15***	21***	17	17
No one	41***	55*	47***	60***	53

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's values compared to the average from the district's other 12 schools.

Finally, the shadowing data provided evidence about the types of individuals with whom students interacted during a typical school day (Table 27). Riverview students were significantly more likely to be observed interacting with teachers than students in the other schools. Most notably, in nearly half the five-minute shadowing segments, students were not interacting with anyone. These observations do not appear to be consistent with other evidence from the case study schools.

Table 27. Shadowing Results for Four Core Subjects on Who Students Interacted With During Class

	LVA		HVA		District mean
	Mountainside	Valley	Lakeside	Riverview	
Teacher	13.2*	12.0*	9.8%***	27.3***	16.5
Student(s)	26.4	24.3	16.8**	23.4	22.9
Teacher and student(s)	10.6***	6.0	4.4*	6.2	6.9
No one	46.5	54.2	62.7***	39.9***	49.7
Other/unclear	3.4	3.7	6.3*	3.2	4.0

*School estimate has a statistically significant difference from all other schools combined at $p < .05$

**School estimate has a statistically significant difference from all other schools combined at $p < .01$

***School estimate has a statistically significant difference from all other schools combined at $p < .001$

Note: These figures refer to percent of five-minute observational segments. For example, in 16.5% of observational segments, the student was observed to be interacting with the teacher.

Culture of Learning and Professional Behavior

Culture of Learning and Professional Behavior, the fourth component, refers to students and teachers taking part in a strong culture of learning and professional behavior. This culture is defined by a shared focus on high expectations for students and emphasis on students' academic needs among the administration, staff and faculty of the school.⁸⁷ Students internalize these cultural values as well, taking responsibility for their own learning and working together to promote their academic success. For teachers, a culture of learning and professional behavior also includes the existence of teacher professional learning communities and other communities of practice that define norms of engagement, commitment, and heightened professionalism for learning.⁸⁸ Several major aspects of school climate determine and set the tone of a culture of learning and professional behavior: safety, including physical and social-emotional aspects; a culture that supports quality teaching, including attention to ongoing teacher professional development, shared high instructional expectations, and attention to social and academic learning; and a foundation of effective relationships, including respect for diversity and teacher collaboration and connectedness.⁸⁹ There was variation across the four schools on this component. Although the higher value-added schools had cultures of learning based on high achievement, their means of establishing such cultures differed. Professional behaviors appeared to vary even more across the schools, with little apparent association to school performance. Participants at both higher value-added schools and in Valley referred to a culture of learning that reflected a push toward meeting district curriculum standards. Nevertheless, each school manifested distinct cultures of learning. Lakeside focused on students developing a sense of responsibility for their learning, formally supported by their Code, whereas Riverview had a long-standing tradition of excellence with a current emphasis on encouraging lower performing students to enroll in honors or AP courses in an effort to close the achievement gap. Also at Riverview, the learning culture appeared to be undergirded by more advantaged parents' use of their social capital to ensure success for their children. Even when teachers expressed negativity about these more demanding parents, it

was clear that their interest and involvement was preferable to the mostly absent less advantaged parents.

Tutoring requirements and academic expectations at both HVA schools suggested distinct approaches to developing a culture of learning. For Lakeside, tutoring was part of the Lakeside Code and was seen by teachers as both an academic and social tool. Here, high academic expectations revolved around encouraging students to be proactive about their learning with an apparent greater emphasis on developing personal autonomy and taking personal responsibility. At Riverview, tutoring appeared to be mandated by the administration. While there seemed to be a general pattern of high expectations for Riverview students, expectations were particularly high for students in advanced tracks, contributing to an achievement gap and the sense of a “school within a school.”

Both lower value-added schools reflected a pattern of low academic expectations by teachers. At Valley, however, this mindset was a byproduct of the administration’s thrust toward building adult-student relationships. Mountainside also had a similarly stated goal toward personalization; however, it was never realized, due, at least in part, to a significant distrust between the staff and administration, high turnover in administrators, and poor or absent disciplinary structures. Participants at both schools reported a pattern of giving students multiple second chances to complete coursework. However, at Valley, struggling students also had to complete mandatory tutoring, whereas Mountainside students rarely took up such tutoring opportunities. That said some faculty at Valley saw the reduced academic demands as coddling the students. Students’ sense of safety and general behavioral compliance were higher at Valley, reflecting a significant turnaround for that school. Nevertheless, participants at both schools reported difficulty in motivating students academically. It must be noted that when asked about the likely reasons for student success, teachers of all schools generally suggested the significant role of a student’s socio-economic status, parental involvement, and race. However, teachers in the HVA schools (particularly Lakeside) were more likely to discuss these factors as challenges to be addressed, rather than excuses for student failure.

In all four case study school, teacher collaborations were centered within content departments and facilitated by weekly scheduled meetings. Valley also had a strong grade-level teaming structure. These meetings formed the basis of formal collaborations that addressed alignment of content for those teaching the same courses. Efforts at vertical alignment were also mentioned as a basis for formal collaboration; however this process seemed more formalized at Riverview and, in some subject areas, Valley. Informal collaborations among faculty members to address instructional needs were apparent in Lakeside, where teachers reported e-mailing each other and “sharing ideas,” and in Valley, where there was frequent sharing of resources. At both Lakeside and Valley, participants also reported talking about students’ academic and social issues. The apparent lack of informal sharing by faculty at Riverview and Mountainside may be related to each school’s professional climate. At Riverview, there was a sense of competition among faculty in advanced tracks, perhaps as a result of the school’s historically high achievement focus. At Mountainside, there was an apparent sense of instability and lack of trust, with high personnel turnover rates.

Professional development (PD) opportunities were generally either school-sponsored or district-led. District-led professional development was available to all four schools, but attitudes toward these

programs differed. Professional development opportunities at Lakeside were widely available, especially through informal interactions among colleagues, such as common planning, walkthroughs, coaching for lead content teachers (LCTs), and departmental meetings. Training in the Kagan method for cooperative learning was pervasive as a means of instructional improvement, particularly in regards to cooperative learning. District-sponsored programs/activities were the major source of professional development at Riverview. At Mountainside, participants reported various occasions for professional development, although many questioned the validity and helpfulness of feedback after classroom observations. Many also questioned the effectiveness of mandatory PD (e.g., Kagan strategies). Valley participants tended to consider professional development externally driven from the district, and not based on site-specific tasks. Yet, this training at Valley was deemed more effective than site-based PD, which was based on principal-initiated book clubs. It appeared that the openness to external PD—as in the case of Lakeside and Valley—may also have been related to the proportion of new teachers on staff and an assumption they needed such opportunities. As such, while adults at Riverview reported dissatisfaction or displeasure, those at Lakeside and Valley reflected appreciation of district-led PD. In the case of in-house PD at Mountainside and Valley, one factor that may have affected teacher attitudes was whether they felt that they or their teaching methods were being unduly criticized. In Lakeside and Mountainside, the role of LCTs in providing PD to match teachers' specific needs was seen as beneficial.

The teacher survey also provided data on evidence of culture of learning and professional behavior. The scale that measures the degree to which collaboration improves instruction captured the extent to which teachers planned lessons together, reviewed student work and data with other teachers, observed each other, and worked to identify individual students' needs together. Teachers at Lakeside, Riverview, and Valley had significantly higher averages on this scale. The scale measuring frequency of collaboration indicated that teachers collaborated one to three times a month on lesson plans and reviewing students' work and data, with most teachers agreeing that they have a planning period with other teachers in their department/subject area. Teachers at Riverview and Valley reported more frequent collaboration (i.e., planning lessons, reviewing student work together) than the district average. The scale measuring frequency of peer observation and feedback indicated that most teachers observed each other and provided feedback less than once per month. None of the schools were statistically different from the district average on this measure. The scale measuring positive faculty climate included items such as whether administrators respected teacher opinions and whether teachers enjoyed working in the school, had opportunities to do their best every day, and recognition were recognized for a job well done. Teachers at Lakeside and Valley were significantly more likely to report positive faculty culture, and teachers at Mountainside were significantly less likely to report positive faculty culture. This was consistent with the interview data. In terms of teacher perceptions of the student climate, the only measure available is about bullying/school safety, on which Lakeside teachers reported significantly less bullying compared to other teachers in the district.

Table 28. Teacher Survey Data on Culture of Learning and Professional Behavior

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Collaboration Improves Instruction	3.01	3.14**(+)	3.21*(+)	3.08*(+)	2.90 (0.75)	1 - 4
Frequency of Peer Observation and Feedback	2.44	2.39	2.23	2.30	2.29 (0.80)	1 - 4
Frequency of Collaboration	2.51	3.01*(+)	2.68	2.94*(+)	2.76 (0.83)	1 - 4
Positive Faculty Climate	2.34***(-)	3.28***(+)	3.27*(+)	3.12	3.03 (0.61)	1 - 4
Bullying/School safety	2.68	2.23	3.20*(-)	3.40	2.36 (0.88)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Several items on the student survey data captured aspects of school climate, which falls under this component. While there were differences among the schools, no clear pattern emerged between the HVA and LVA schools as a group (see table 29). Valley had high scores on the negative school culture construct, suggesting students in that school thought their peers felt it was OK to cheat and make racist or sexist comments. However, students in Valley also had higher scores on a general measure of school climate, which captures the extent to which students feel respected, get recognition for doing well, and are encouraged by the teacher to share ideas. Somewhat surprising given the interview data, Riverview students' survey responses were less favorable on school climate, but also less negative on indicators of school culture, safety, and bullying. Students in Valley and Lakeside reported more bullying. This differed from reports by Lakeside teachers of less bullying than the district average. Students at Mountainside reported feeling less safe, which was consistent with the interview data.

Table 29. Student Survey Data on Culture of Learning and Professional Behavior

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Student Responsibility:	3.48	3.68***(+)	3.51	3.41**(-)	3.48	1 – 5
Negative School Culture					(1.14)	
School Safety	3.11*(-)	3.20	3.19	3.22***(+)	3.18	1 – 4
					(0.56)	
School Climate	2.89	2.96***(+)	2.87	2.87**(-)	2.90	1 – 4
					(0.46)	
Bullying	2.40***(-)	2.65***(+)	2.66***(+)	2.48***(-)	2.56	1 - 4
					(0.79)	

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school’s mean scale rating compared to the mean from the district’s other 12 schools.

Parent survey data also provided insight on school climate. The climate scale captures whether parents feel they are treated with respect at the school, feel welcome there, feel it is a safe place, and feel it is preparing their child to succeed. Parents at Riverview were significantly more positive regarding the school climate than parents from other schools in the district, while parents at Mountainside were significantly more negative. The negative climate rating by parents of Mountainside students was consistent with the data from teacher surveys and interviews. The bullying items asked parents to indicate whether their child had been bullied at school or via texting, Internet, or phone. On average, parents across all four schools indicated that their students had been bullied, though none differed significantly from other parents in the district.

Table 30. Parent Survey Data on Culture of Learning and Professional Behavior

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
School Climate	2.86*(-)	2.99	3.09	3.21***(+)	3.02 (0.67)	1 – 5
Bullying	3.37	3.36	3.34	3.43	3.36 (0.79)	1 - 4

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

The administrative data included several indicators that helped us understand the culture of learning for students (Table 31). The four case study schools had similar student attendance rates, although rates at the HVA schools had risen in recent years and both have slightly higher rates than the LVA schools. The HVA schools also had fewer students with disciplinary action, suggesting fewer behavioral concerns. Riverview had seen a marked increase in disciplinary referrals.

Table 31. Attendance and Disciplinary Behavior for Most Recent Three Years and Change over Recent Two Years

	LVA Schools		HVA Schools		District Mean
	Mountainside	Valley	Lakeside	Riverview	
Most recent 3 years					
Attendance Rate	90%	92%	94%	93%	92%
S. w/ "Disciplinary Action"	47	42	22	22	31
Two-year change					
Attendance Rate	-5%	-1%	16%	6%	4%
S. w/ "Disciplinary Action"	-2	24	6	11	9

Note: These changes are from SY08 to SY10, rather than SY09 to SY11

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Connections to External Communities

Connections to External Communities refers to robust connections and relationships between schools, families, and other community partners. The literature on high schools and parent and community relationships is limited, especially when compared to the vast conceptual and empirical literatures on parental and community engagement in elementary schools and in education in general. While there is agreement with the notion that "families, communities and schools hold shared and overlapping

responsibility for the healthy development and the social and academic success of all children,”⁹⁰ less is understood as to how these aspirations are fulfilled in high school. To the extent that the literature on the relationships between high schools and student achievement does address external constituencies, the focus is primarily on parents, with much less attention to the larger community in terms of social agencies, businesses and community assets. Furthermore, the empirical research in high schools is clear: parental support and parent involvement matter, as these provide sources of social capital.⁹¹

Outreach to External Communities

Generally speaking, there were few systematic differences between the HVA and LVA schools in outreach to external communities. Riverview set itself apart as an outlier in the sense that the school leaders had made systematic attempts to involve parents. These efforts had largely succeeded. Parents of both segments of the school population (the higher performing 60 percent and the lower performing 40 percent, which was majority Latino) were involved in the school. However, teachers still reported difficulties engaging the parents of students in lower-track classes. The other schools notably made somewhat systematic attempts to reach out, but the efforts did not stir a big response. School participants cited the main constraints in fostering successful school-community linkages as: low parental educational attainment, language barriers, and unease with the schooling institution. All four schools leveraged connections to the community for resources, though to varying degrees, to provide opportunities for students and to improve community relations or the school’s image in the community. Mountainside and Valley both had relationships with companies that clearly supported academics in the programs of choice. Community support opportunities for students seemed best at Riverview, where students benefitted from a partnership with a local four-year university. Most of these school outreach programs involved and targeted small numbers of individuals were short-run, and were not directly tied to academic goals. This was true even of programs considered most successful, such as blood drives or Valley’s “Pyramid Fair,” an event informing families about the elementary, middle and high schools in a given school zone.

Parent Involvement

Teachers and staff in both LVA and HVA schools regarded parent involvement as a significant challenge and an area for improvement. Only Riverview had a fully functioning PTO, which was described in superlatives as the largest, strongest that teachers had seen. The lack of functioning PTOs at the other three schools may have reflected the amount of parent involvement there. At Riverview, the parents of socioeconomically advantaged students were involved (some teachers suggested over-involved), while the school also struggled to connect with the parents of lower-class and Hispanic students. The school had several efforts underway to engage Hispanic families more. In the LVA schools, Lakeside and the Hispanic portion of Riverview, family characteristics that can hinder academic success (single-parent homes, lack of English proficiency, low parental educational attainment) were cited as impediments to successful school-family linkages. Parental engagement was perceived as particularly weak in Mountainside and Valley.

Systematic differences emerged in how HVA and LVA schools approached the process of involving parents. In both HVA schools, participants reported systemic, school-wide programs and practices

targeted at engaging parents. In Riverview, these efforts were more proactive – especially in terms of reaching out to Hispanic parents. For example, a concerted effort was made to hire Spanish-speaking staff, to have these staff at events with Hispanic students, and to make special efforts to get Hispanic parents to attend school events. In Lakeside, efforts to involve parents were reportedly more reactive; parents were engaged in response to students’ performance and behavioral issues. At Valley, teachers were required to contact all parents in the first six weeks of school. In Mountainside, participants reported that efforts to engage parents were more focused on individual efforts than systemic and school wide. In Mountainside, for example, the task of forming relationships with and engaging parents was undertaken by social-emotional support personnel such as the Umoja⁹² coordinator or the stay-in-school-coordinator. Interviews with district officials suggested that the HVA schools involved parents more successfully.

Quantitative Data

The teacher survey data supported the qualitative data’s finding that connections to external communities were highest in Riverview and lowest in Mountainside (Table 32). Parent outreach-school support refers to the extent to which teachers reported that the school as a whole encouraged and supported parent involvement.

Table 32. Teacher Survey Data on Connections to External Community

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Parent Outreach - School Support	2.54	2.65	2.56	2.89**(+)	2.71 (0.61)	1 - 4

* for p<.05, ** for p<.01, and *** for p<.001. Statistical significance was calculated based on mean comparisons tests between each case study school’s mean scale rating compared to the mean from the district’s other 12 schools.

On the student survey, the scales with the most variation across schools contained questions relevant to parents, grouped here under this component (Table 33). The parent press for academic achievement scale indicated that, on average across the district, parents talked with students two to three times a semester about how they were doing in school, what they were studying in class, and their homework assignments. The parent connections-involvement scale indicated that, in general, students reported that parents helped with homework assignments, volunteered at school, and helped them decide what classes to take two to three times per year, and indicated that their parents did not know most of their teachers. Parent connections-future orientation refers to the extent to which parents encouraged students academically and talked to them about college and future career plans. On average, students report this occurring two to three times per semester. Consistent with the interview data, Riverview scored at the top of the district on all parent-related constructs. Also consistent with the fieldwork data, HVA Lakeside and LVA Valley scored at the bottom of the district on most of the parent-related constructs. Mountainside fell near the district average on these constructs, although it was higher on

parent connections-involvement, which was not consistent with what interview and focus group participants reported.

Table 33. Student Survey Data on Connections to External Community

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Parent Press toward Academic Achievement	2.99	2.80***(-)	2.81***(-)	3.23***(+)	2.98 (0.97)	1 - 4
Parent Connections: Involvement	2.24***(+)	1.85***(-)	-1.90***(-)	2.32***(+)	2.08 (0.72)	1 - 4
Parent Connections: Future Orientation	3.17	3.03***(-)	3.07**(-)	3.32***(+)	3.17 (0.88)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Similar to the teacher and student survey data, the parent survey data indicated that parents were most connected at Riverview and less connected at the LVA schools. On the parent survey, the scales measuring Connections to External Communities included parental involvement, school-home communication, learning at home, and parental self-efficacy⁹³. The school-home communication scale included items on the occurrence and timeliness of communication regarding a child's academic work and behavior and school events and activities. The self-efficacy scale captured parents' estimates of how quickly they responded to teachers' requests, whether they felt their involvement was appreciated by teachers and staff, and whether they believed parents were responsible for helping their child succeed academically. Generally, parents agreed that their child's school communicated with them regularly and felt efficacious when it came to parenting. The learning at home scale captured the extent to which parents felt that the school provided them with clear information on how to interpret assessments and reports and to monitor and discuss school at home. It also gauged the degree to which they felt able to help their child with schoolwork. Parents at Lakeside, Mountainside, and Valley were more likely to disagree with these statements than parents at Riverview. The parental involvement scale captured the levels of parental involvement in activities such as parent-teacher conferences, academic events, extracurricular activities, and help with homework. Parents at Riverview were mostly likely to report some involvement, while parents at Valley were mostly likely to report low involvement.

Table 34. Parent Survey Data on Connections to External Community

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
School-Home Communication	2.82	2.84	2.85	3.12***(+)	2.94 (0.77)	1 - 4
Self-efficacy	3.01***(-)	3.00**(-)	3.17	3.38***(+)	3.23 (.75)	3.23
Learning at Home	2.81	2.67*(-)	2.86	3.05***(+)	2.85 (0.88)	1 - 4
Parental Involvement	2.35*(-)	2.14***(-)	2.34	2.78***(+)	2.52 (0.75)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Systematic Performance Accountability

Systemic Performance Accountability refers to the “new accountability” espoused by recent education reforms, in which outcomes take precedence over processes in the evaluation of scholastic performance.⁹⁴ The literature on systemic performance accountability in secondary schools finds that efforts to shift the focus of accountability from educator processes to student learning outcomes do not always achieve the desired effects on either processes or outcomes. However, the success or failure of an accountability policy appears to rely less on the quality of the policy's design than on the quality of its implementation.⁹⁵ One finding consistent across the literature is that the success of accountability policies, as measured by either implementation fidelity or student achievement, is mediated by teachers' beliefs about their students.⁹⁶ Specifically, whether teachers alter their practices in response to new policies hinges on educators' willingness to acknowledge connections between instructional practices and student learning (personal responsibility) and between student learning and the policy's outcomes of consequence (data validity). Acknowledging these linkages determines whether educators respond to accountability measures with instructional strategies or deflection strategies.

Based on interview data, there appear to be a few areas of convergence/divergence among our case study schools regarding systemic performance accountability: the nature of the culture of accountability in each school, trust among actors in the system, and the presence of consequences for performance. Across all three of these constructs, there were no systematic differences between HVA and LVA schools. Instead, we found qualitative differences between individual schools – in particular Lakeside and Mountainside. Regarding school culture of accountability, for example, participants in Lakeside reported a strong, proactive culture of high expectations and accountability. This was reinforced by the Lakeside Code, and it encouraged internalization of responsibility and accountability among actors. In Mountainside, by contrast, participants depicted a far weaker culture

of accountability, in which discipline was inconsistent and actors (especially students) might not internalize responsibility or accountability for their performance. In Riverview and Valley, views on cultures of accountability appeared to be more mixed, with actors indicating both strengths and weaknesses.

Trust among school personnel disaggregated similarly. While no consistent differences emerged between HVA and LVA schools, Lakeside and Mountainside appeared to represent poles between which Riverview and Valley fell. Participants in Lakeside reported a strong sense of trust between the administration, faculty, and students; participants reported that this foundation of trust created an environment in which teachers were willing to accept performance feedback as well as consequences for poor performance. In Mountainside, participants reported relatively weak trust among school personnel. As a result, teachers may have perceived feedback to be invalid (or, in some cases, ill-intentioned), or that consequences/discipline were unfairly applied. In Valley, participants reportedly perceived a general sense of trust, while interviews at Riverview produced mixed reports on teachers' perceptions of the validity of feedback.

Finally, there did not appear to be consistent differences between HVA and LVA schools on the application of consequences for students. Lakeside participants reported a strong perception of consequences for failing to meet standards – or rewards, conversely, for exceeding accountability standards. Interviews at the other three schools revealed more mixed perceptions of the nature of consequences and their application. In both LVA schools participants reported a culture of multiple chances allowing students several opportunities to make up for failure. These practices had both positive and negative aspects in respondents' views. Such limited expectations of student accountability in the LVA schools supported the finding that academic press was a key difference between HVA and LVA schools.

Data from the teacher surveys indicated that scales related to performance accountability (Teacher Accountability and Principal Effectiveness in Supporting Systematic Performance Accountability) were particularly high in Lakeside and particularly low in Mountainside, supporting many assertions drawn from the qualitative data. The Teacher Accountability construct measures the extent to which teachers feel that there are consequences for teachers who don't perform well, that feedback on their instruction is valuable, that other teachers hold them accountable for performance, and that teachers who don't do well are given opportunities to improve. The Principal Effectiveness at Supporting Systemic Performance Accountability construct captures the teacher's evaluation of the principal in holding faculty accountable, advocating for holding students accountable for achieving at high levels, and challenging faculty who do not hold students accountable. Both HVA schools scored higher than their LVA counterparts on the Teacher Accountability scale. Mountainside had the lowest mean scores across both systemic accountability-related scales, supporting many of our findings from the qualitative data. Scores on the items measuring principal support for systematic performance accountability were mixed, with Valley scoring higher than the district average and Riverview similar to it. The high regard teachers in Valley had for the principal may have contributed to this high rating. Somewhat to our surprise, given the prior findings about observation and feedback, none of the case study schools were statistically different from district averages perceptions about on the Instructional

Support from Leadership measure, which captures how frequently teachers are observed and get feedback from administrators on their instruction.

Table 35. Teacher Survey Data on Systemic Performance Accountability

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Instructional Support from Leadership	2.10	2.46	2.56	2.33	2.33 (0.77)	1 - 4
Teacher Accountability	2.45***(-)	3.08	3.22*(+)	3.16**(+)	2.98 (0.60)	1 - 4
Principal Effectiveness at Supporting Systemic Performance Accountability	2.20***(-)	3.45***(+)	3.53***(+)	3.21	3.07 (0.82)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Systematic Use of Data

Systemic Use of Data refers to data use or data-based decision-making as a practice critical to school improvement efforts. Yet it would be faulty to assume that access to data alone will lead to more effective practice.⁹⁷ Rather, research on systematic data use suggests that effective practice requires a critical consideration of both which data and which forms of use are most effective in improving academic performance. Though research specific to data use in high schools is scant, a consistent finding across this work is that where data use is effective, the power to make data-based decisions is diffuse, collaborative, and pervasively integrated into practice. In contrast, data-based decisions made centrally and dictated to teachers breed resistance, foster mistrust, and do not improve instructional practices.

Based on interview data, participants across our case study schools tended to discuss their use of data in terms of three primary elements: access and availability, capacity and use, and cultures of data use. There did not appear to be systematic differences between our HVA and LVA schools with regard to this component. Across all four schools, for instance, participants reported that they had access to a variety of performance data. Similarly, in all four schools, much of the data referenced by participants were derived from external assessments, such as the TAKS or Curriculum Based Assessments, which are designed by the district and administered every six or nine weeks, depending on subject area. Mountainside deviated from the rest to a certain extent in that multiple participants reported using some assessments developed by teachers within the school to inform their practice (e.g. bell-ringer quizzes -- or quizzes to be taken at the beginning of class -- and other diagnostic assessments in math). Administrators across schools also reported accessing other types of data, including classroom

observation scores, attendance data, and grades.

Similarly, there do not appear to be systematic differences in how our HVA and LVA study schools used data. Participants in each school reported using it primarily to inform instruction by guiding pacing, identifying areas of student deficiency, and informing teachers' efforts to design lessons. Similarly, participants across all four schools also reported using data to assign students to classes. One potential area of divergence was the use of data for teacher assignment, with Lakeside and, to a lesser extent, Valley, reporting that they used data on teachers' performance when assigning teachers to courses (although the nature of performance data used were not made explicit).

Finally, there are no systematic differences between HVA and LVA schools in having cultures of data use. Across all four schools, participants reported largely functional cultures of data use. As such, data-driven decision-making was a necessary part of their work, and participants reported often working collaboratively to analyze and make use of performance data. Valley's administrative leaders may have emphasized data-use more heavily, reportedly a push by the current principal. Responses indicated that data may have been used more pervasively across levels (administrative, instructional, etc.) at Lakeside than in the other study schools.

Teacher survey responses on data use were relatively mixed, and did not indicate that different data use practices drove student growth in our higher value-added schools (Table 36). The district mean for the Data Use scale indicates that teachers generally agreed that they are using data from Curriculum-Based Assessments (CBAs) and other sources to enhance instruction, plan lessons, set learning goals, form small groups for targeted instruction, and identify students for tutoring or other interventions. Survey results revealed higher mean scores on the data use scale for both LVA schools than both HVA counterparts (although only Valley's results were statistically different from the district average). Some evidence in the interviews indicated, however, that accountability frameworks and grant programs at our LVA schools may have been encouraging a relative emphasis on incorporating data into decision-making processes. Further work could focus on unraveling the "chicken or the egg" question implied by this, to determine whether an increased focus on data-driven decision-making pre-dated, or followed, identified poor performance.

Table 36. Teacher Survey Data on Data Use

	LVA		HVA		District Mean (SD)	Scale Range
	Mountainside	Valley	Lakeside	Riverview		
Data Use	3.15	3.18* (+)	3.10	2.93	3.01 (0.61)	1 - 4

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean scale rating compared to the mean from the district's other 12 schools.

Organization of the Learning Environment

While organization of the learning environment was not one of the original research-based essential components, we did want to understand how key organizational functions of the school took place. These included how students were assigned to courses, how teachers were assigned to courses, and the assignment of the leadership team.

Student Assignment to Courses

The interview data described the contribution of multiple stakeholders to student course assignment. Overall, student assignment to courses was similar at all schools. However, schools differed in the amount of student and parent input they allowed in the process of course selection and course rigor. At all schools, the counselors assigned students to courses, considering test data, previous courses taken, and graduation requirements. At all schools, students provided some limited input about the classes and level of rigor they preferred. However, students had considerably more autonomy in course selection at Valley, which allowed students to select classes but required teachers and counselors to sign off on the level of rigor. All schools allowed parents to provide input on the rigor of classes students were assigned to. At Lakeside, honors courses had open enrollment. Riverview encouraged students to take advanced courses, usually when teachers and counselors believed a student could succeed at higher levels. In contrast, at Mountainside, a student's course rigor usually remained static over the course of his or her schooling.

Student survey data indicate that students at all four schools talked to various adults about what courses to take (see Table 37). The survey data support the interview data, revealing that students talked to counselors more than any other adult in school about course selection. Students at Mountainside reported the lowest percentage of students talking to counselors about what courses to take, while Riverview reported the highest. At all schools, teachers were the next adult students reported speaking with about course selection. Similar percentages of students at each school responded "no one" on this measure, which was the third most common response at all schools except at Mountainside where it tied with "other".

Table 37. Number and Percentage of Students by School Who Talked to Various Adults about What Courses to Take

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	7%***	3%	3%	3%***	6%
Counselor	63***	65***	68	69**	68
Teacher	28	30	29	33***	29
Coach	10***	9***	6**	8	7
Other	14***	10*	14***	12	12
No one	13	16**	13*	15*	14

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Teacher Assignment to Courses

The process by which teachers received course assignments differed at each school. Interview data revealed that teachers at Lakeside, Mountainside, and Valley provided input about course preferences. Lakeside considered these preferences, along with student needs and input from the Lead Content Teachers and other administrators, when assigning teachers. Decisions about what level of rigor a teacher should instruct were informed by an administrator's classroom observations and data on AP pass rates for teachers. At Mountainside, the school considered teacher input, along with the areas in which teachers held state certification, with very little evidence that the process was data-driven. At Valley, the leadership team considered teachers' preferences, along with their energy level, prior performance, and their likely fit with other teachers in the academic department. At Riverview, the leadership team and the department chairs assigned teachers based on departmental needs. In nearly all cases, teachers of core academic subjects taught either advanced-or on-level courses; most did not teach across the tracks.

Assignment of Leadership

Assistant principals at all four schools oversaw one or more departments, with assignments based on varying criteria. At Riverview, each assistant principal oversaw students whose surnames fell within a certain section of the alphabet, while at Lakeside, the assistant principals received a grade-level assignment. Mountainside combined the two approaches with one assistant principal overseeing 9th grade and the other two splitting the rest of the grades in alphabetic groups. Valley had a unique approach among the study schools in that assistant principals received only departmental assignments. Each person was assigned to handle all student discipline issues on certain days, and then relieved of this duty on other days to focus on other concerns—including instructional leadership. Further, there is not a consistent difference between HVA and LVA schools in whether administrators or counselors loop⁹⁸ with students.

Promising Practices.

We provide seven promising practices to describe specific programs and approaches that appeared to contribute to increasing students' responsibility for their own learning, and describe how the success of the practices was sustained by the school-wide facilitating conditions evident in effective schools. The first four practices were in the two higher value-added schools. The next three were in the two lower value-added schools. We stress that effective practices can be found in both types of schools. One key difference between higher and lower value-added schools was the degree to which such practices existed. In the higher value-added schools such practices were more systemic, spanning the entire school, while they existed only in portions or pockets of the lower value-added ones. Because the examples are written to illustrate how schools used the practices to enact the school-wide facilitating conditions, key terms related to the conditions appear in bold type.

1. Lakeside: The Code

Description

The Lakeside Code can be summed up by the school motto Effort Required. The cornerstone of Lakeside's improvement efforts, it included seven behaviors students were required to demonstrate to increase their own accountability and responsibility for learning: 1) attend school and be on time; 2) come prepared to class and take advantage of tutoring opportunities during Learning Time; 3) find out required assignments after missing school; 4) be able to either explain what the teacher has emphasized or have a question about what isn't clear; 5) practice independent applications of material to ensure understanding and attend Learning Time when you don't understand; 6) talk to teachers about assignments and tests where you struggled; and 7) monitor your own progress through Assignment Logs. Staff members were expected to know these elements of the Code, and school personnel occasionally described it as a student code of conduct and treated it as such by linking violations to sanctions such as referral to an Intervention Committee and in-school suspension. However, the Code also set expectations for academic and instructional behaviors of both students and teachers. Each element included specific behaviors required for compliance by students, as well as expectations for teachers to support students in taking responsibility for their own learning. For example, point 4 expected students to pay attention and ask questions in class, while expecting teachers to press students for explanations. Teachers were expected to randomly select students to respond, teach students how to manage their attention, and ask students to summarize their learning from the previous day.

Although the Code only took effect in the 2011-2012 school year, it followed years of work by school leaders to develop a shared understanding of the need to reduce student dependence on teachers and build student responsibility in order to improve student learning. The principal described how a core group of faculty and administrators compared the school's student achievement data with that of other schools in the district and determined that what successes they had achieved had come from putting the locus of responsibility on teachers. This group realized that students needed to take more

responsibility if the school was to improve further. The current principal, while new to the role in 2011-12, was part of the leadership team during these discussions. Thus the Code was, in a sense, a formalization of this shared vision and a structure to support its enactment. The Code initially focused on students, but as it was implemented, the school realized that students were more likely to meet the expectations if the Code included expectations for teachers, too, and these were added midyear. For example, point 7 of the original Code required students to monitor their progress with the Assignment Log. The Code evolved to require teachers to help students by training them to use the Assignment Log and calculate their grades, giving them time to update their logs after returning work, monitoring the logs, and refraining from posting grades.

The Code was posted in almost every classroom and teachers (with the encouragement of leadership) referred to elements of the Code during class. For example, students who didn't bring materials to class were reminded that the Code expected them to come prepared. Teachers reported monitoring Assignment Logs and rewarding students whose logs were accurate, while administrators randomly asked students to share their logs. School leaders supported implementation of the Code and mentioned it frequently in various types of interactions with teachers (e.g., weekly principal e-mail to the faculty, as feedback after classroom walk-throughs, in faculty meetings). The principal also provided professional development opportunities to teachers to help them learn how to implement elements of the Code.

Part of what made the Code effective was its integration and alignment with other systems in Lakeside. The remainder of this case example focuses on how the Code was enacted through the strategies used by the school and facilitated by several school-wide facilitating conditions. In particular, points 1, 5, and 6 of the Code had explicit expectations for when students should attend Learning Time and be referred to the Intervention Committee for non-compliance with the Code.

How the Lakeside Code Supported Increasing Student Ownership and Responsibility

The Lakeside Code encouraged students to take responsibility for their own learning by explicitly teaching behaviors that demonstrate personal investment in learning. The school also sought to help students develop a sense of efficacy by recognizing that they have the ability to achieve if they exert the effort required to succeed.

The enactment of the Lakeside Code illustrates how the teachers and other adults in the school used academic press and academic support to scaffold students' learning of both academic and social behaviors to guide them in assuming ownership and responsibility for their own learning. Further, the structures and practices that contributed to academic press and academic support were integrated and aligned with each other. In terms of **academic press**, Lakeside created shared practices around student accountability, high expectations, and an academically focused environment, within an instructional vision devoted to student ownership, responsibility, and engagement. There were clear expectations for students with explicit consequences for not following the Code. Teachers also reported that they were supported in maintaining high expectations for students and holding them accountable for meeting those expectations. To create an academic environment of high expectations, the school explicitly set the goal for student performance higher than that of the district as a whole. The Code also set out expectations for student conduct, but it focused more on academic and

instructional behaviors than discipline or social behaviors. Notably, the school decided to de-emphasize the dress code to focus student accountability on elements in the Code. Finally, the explicit expectations for all teachers outlined in the Code made it clear that there are instructional implications. The school's primary improvement strategy, then, sought to help students learn before they had a chance to fail and require remediation.

Academic support was conveyed through school-wide mechanisms to help students meet the expectations set out in the Code. One mechanism was the Learning Time tutorial system (see below), which designated a time when teachers were expected to be available and students were expected to attend if they had missed assignments and/or were struggling in class. Thus, Learning Time was another example of a school-wide effort to teach students to take responsibility for their learning by expecting behaviors that demonstrate personal investment in their learning. No one could plead ignorance of the Code's requirements. Teachers and other school personnel posted it throughout the building, including in every classroom, and created an Intervention Committee process (described below) to work with students who lapsed.

Several school-wide facilitating conditions supported enactment of the Code. First, as the centerpiece of Lakeside's improvement efforts, the Code codified the school's **shared vision and the aligned and coherent structures created to support the vision**. As noted above, prior to formalizing the Code, the school leaders developed a shared understanding that they needed to reduce student dependence on teachers and make it clear students were responsible for their own learning. Over several years, most adults in the school began to buy into this developing goal. Through this evolution, Lakeside became mission-driven. Clear processes and procedures were put in place to meet the goal and achieve the shared vision. Further, policies, practices, and activities were aligned to each other and to the vision. One reason the Code was effective is that, as the most prominent embodiment of the school's vision, it set forth both specific behaviors—and interventions for infractions—that were integrated into and aligned with other school-wide processes. Thus, it represented a holistic vision that not only codified the explicit expectations of Learning Time, Assignment Logs, and the Intervention Committee, but it fostered a professional environment in which in-service training could be linked to the Code and the implementation of Code provisions could be monitored through regular classroom walk-throughs.

Lakeside also had a culture of **trust** that was fostered by communication between administrators and teachers. This trust facilitated much of the shared school practices as it allowed administrators and department heads to hold teachers to high expectations without significant resistance. In particular, it increased teacher buy-in to the shared vision and allowed teachers to feel supported when holding students accountable and pressing them to be responsible for their learning.

The relative **stability** of leadership, teachers, and students facilitated school practices and the development of the shared vision and understanding of the Code. Even with a first-year principal, continuity was possible because the principal was part of the leadership team under the former principal. More experienced teachers reported that as they focused on student ownership and responsibility over several years, student response was improving. Although the school had recently added new teachers in response to student growth, the newcomers were hired only after expressing

support for Lakeside's goals of student ownership and responsibility and willingness to enforce the code. The strong **relationships and a sense of care** between teachers and students also facilitated the school's efforts to help students take more responsibility for their learning. Teachers reported that students were willing to be held accountable and responded to teachers' efforts to shift the locus of responsibility over to them because they had strong, personal relationships. Students felt that their teachers were willing to go the extra mile for them and they responded in kind.

Because the Code outlined behaviors that teachers were expected to exhibit, **teacher accountability** practices facilitated the successful enactment of the Code. Student ownership and responsibility for learning was the focus of both student and teacher accountability, with classroom observations including checks for teachers' efforts to ensure that students took active ownership of their own learning. Teachers, then, were held accountable for holding students accountable.

Teachers' willingness to be held accountable in these ways was supported by a sense of **individual and collective teacher efficacy**. While teachers described several school challenges, such as lack of resources, language barriers with students and parents, and low parental involvement, most teachers described these forces as challenges to be overcome rather than excuses for not succeeding. Teachers believed their efforts could affect student success, both individually within the classroom and collectively through school-wide practices. In particular, teachers recognized that while getting students to take responsibility was a major undertaking, the school was experiencing some success.

Finally, the **safe and orderly environment** in the school also supported enactment of the Code. Most students were interested in their learning, and discipline problems were resolved efficiently and fairly. Teachers said the administration supported them in handling student behavior problems. These attributes allowed the school to focus efforts on enforcing academic expectations rather than behavioral expectations.

2. Lakeside: Learning Time

Description

Learning Time was offered during the extended lunch hour when teachers were available to tutor students. Unlike other high schools in the district that had eight 45-minute periods, Lakeside had only seven 45-minute periods to accommodate Learning Time. Students were required to attend unless they had an 81 percent or above in all classes, in which case they received a pass for the six-week marking period. Students could choose how to spend the time and some extracurricular activities, such as student clubs, also met during Learning Time. Thus, a student could attend tutoring with his or her math teacher on Monday, tutoring with his or her science teacher on Tuesday, and a meeting of the drama club on Wednesday. Although some students with a Learning Time pass reported using that time for an extended lunch, sometimes leaving campus to eat, others occasionally sought extra assistance before tests or participated in clubs.

The Lakeside Code expected students to attend tutoring for all classes in which they were struggling or unable to explain key ideas of lessons, and required them to show evidence that they were trying to

understand questions they had missed on assignments and assessments. During tutorials, students could work one on one with teachers, in small groups, or independently to complete missed assignments. The tutorials were a mix of formal and informal tutoring opportunities, and on most days, teachers were available to answer questions from students or help with assignments. Occasionally, one department would offer a more formal tutoring session if the faculty noticed many students having difficulty with a particular topic. All teachers were expected to be available during Learning Time four days a week, getting one day a week to take a full hour-long lunch. However, in practice, most teachers reported spending the lunch time in their classrooms for Learning Time nearly every day.

Learning Time also provided opportunities for students and teachers to build personal, non-academic connections. Some students ate lunch, socialized with their friends, or talked to the teacher about non-academic concerns during this time. One participant explained that Learning Time is “not just kids coming for tutorials, but coming to hang out, talk to us, just be there.”

Learning Time was in its third year of implementation in Lakeside in the 2011-2012 school year, though the new principal instituted several changes. Students were expected to check in with their homeroom teacher at the beginning of Learning Time and inform him or her where they would be spending the time. All teachers were expected to keep track of which students came to them for tutoring so homeroom teachers could check whether students actually attended. Some faculty noted issues with implementation of the changes and frustration with the increasing number of details. Upon hearing this feedback, the leadership decided to reduce the mechanisms to enforce student attendance, and some students reported skipping tutorials even though they did not have a Learning Time pass. Although students were expected to sign in for tutorial sessions and keep a tutorial log, these data were not used systematically to monitor attendance or progress. Despite these inconsistencies, students reported in interviews and focus groups that they attended Learning Time about two to three times per week. This was a considerably higher rate than in the other three case study schools, although they also offered tutorial opportunities, sometimes even during lunch.

How Learning Time Supported Increasing Student Ownership and Responsibility

Learning Time was an effective strategy for increasing student ownership and responsibility because it provided **academic support**. Students and teachers throughout the school said it helped students meet academic expectations. By not only creating time for additional help, but by also institutionalizing this time in the school schedule and making it the default expectation, Learning Time enabled students to better engage in the challenging work set out by their teachers. By making Learning Time the default expectation for students, we mean that rather than operating under the assumption that attending tutorials was an extra, optional activity, school personnel and students appeared to view attending tutorials as the standard, expected behavior. This view was evident in the expectation for students to attend tutorials to make up work or understand concepts they did not grasp fully, even though Learning Time passes were awarded to students who performed well.

The shared expectation that students would attend Learning Time to master learning goals—and the reinforcement of this expectation during class time—also served as a form of **academic press**. For example, teachers were observed reminding students to come to Learning Time when they could not

answer a question in class or struggled with an assignment.

School-wide facilitating conditions reinforced Learning Time. Shifting responsibility for learning to students involved creating **aligned and coherent structures** that supported a **shared school-wide vision** to provide multiple opportunities for students to succeed. The Lakeside Code spelled out the school's standard for excellence and Learning Time and other supports provided opportunities for help to students falling short of the standard. Learning Time also supported use of the Assignment Log. Teachers were expected to post assignments in a visible area of the classroom and students were to keep track of both the assignment and the grade they earned. Through Assignment Logs, students and their teachers were expected to know their class average at any given moment, and therefore know whether they should be attending a tutorial during Learning Time. The responsibility for using this time wisely rested mainly with the students; teachers did not actively monitor where students were or whether they attended the correct tutorial. While teachers and students said some students did not use this time wisely, the general consensus was that most took advantage of this time as needed to complete assignments or receive extra help. Students who continued to struggle despite opportunities to make up work during Learning Time were referred to the Intervention Committee (see below for more details) to receive an individualized learning plan to monitor their attendance, Assignment Log, and assessments.

Trust, stability, and care and relationships between students and teachers also supported the effective enactment of Learning Time. They facilitated student understanding of-- and adherence to Learning Time requirements. While attendance at Learning Time was not perfect, students reported wanting to attend because they knew teachers would be available for additional help. Students told us they most often spent Learning Time with teachers they trusted and with whom they had strong, positive relationships. In turn, Learning Time reinforced these relationships as it provided additional opportunities for teachers and students to get to know each other. Trust among adults in the school and staff stability also enhanced the effectiveness of Learning Time.

While Learning Time was not a major component of teacher accountability in Lakeside, there was evidence that it reinforced **individual and collective teacher efficacy** as it provided an avenue for student success and helped teachers overcome a perceived barrier—the lack of time and space in students' home lives—to getting extra assistance. Teachers reported that many students used Learning Time to complete missed assignments and homework, tasks that work and family obligations often made difficult outside of school.

Finally, the **safe and orderly environment** aided the enactment of Learning Time. Such a program could have set up a different school for disorder. Unlike regular class periods, students did not have to be at the same place for Learning Time each day. Coupled with the extended lunch period and fact that some students had Learning Time passes, the potential existed for a great deal of uncertainty about where students were supposed to be. However, the school remained relatively calm during this time

3. Lakeside: Intervention Committee

Description

The key tenets of the Lakeside Code required students to put forth effort. Students who failed to meet the Code's expectations were identified for a series of interventions that culminated with the Intervention Committee. The first step was a conference with the teacher in whose class the student was struggling to determine the root cause of the poor performance and to develop a plan for improvement. If problems continued, the teacher reminded the student and parents about expectations related to the Code, and again sought to determine the reason for this failure and develop an improvement plan, adding steps to help the parent support the plan. If the student still failed to show the desired improvement, he or she was referred to the Intervention Committee. A sponsor was then assigned to review past interventions with the student and why they did not succeed. Ultimately, students who still failed to show the expected effort were assigned to in-school suspension and possibly referred to a hearing at the district level. The Intervention Committee was led by the dean of instruction and composed of the school social worker, an intervention specialist, and five teachers. The Committee met to discuss students as a group and all members sponsored students referred to them, although the caseload could vary by committee member due to other responsibilities. Sponsors were required to coordinate with the assistant principal who was assigned to the student. Teachers and Intervention Committee members were expected to work with the student to identify underlying causes of failure and move beyond explanations that blamed students (e.g., the student is lazy). The goal was to identify the underlying reasons and then develop a plan to support the student.

The Intervention Committee was in its first year in 2011-12. School participants estimated that 70 to 80 percent of students referred to the Intervention Committee became successful, suggesting that referred students tended to start turning in homework and quiz grades improved.

How Intervention Committee Supported Increasing Student Ownership and Responsibility

The Intervention Committee served as a key **academic support** for students. The interventions were actively linked to academics as part of Lakeside's push for student ownership and responsibility. Notably, adults in the school (starting with the administration) asserted that students' behavior reflected underlying academic issues. This belief informed academic-first responses and interventions to problems that were not ostensibly academic. Hence, the committee sought to address the cause of student failure before a student became a behavioral problem.

The Intervention Committee illustrates how Lakeside enacted the school-wide facilitating conditions evident in effective schools. For example, a **shared vision** and an explicit **aligned and coherent school-wide practice**, were intertwined. The vision focused on both outcomes and a process to achieve those outcomes. Students were referred to the Intervention Committee if they met two conditions: earning an 80 or below in any class and not meeting the expectations of the Lakeside Code. Thus the school set both a performance expectation and a set of behavioral expectations to help students meet the performance expectation. When students failed, the intervention process emphasized helping them understand and implement the behavioral expectations described by the Code, such as making up missed assignments, going to tutorials for additional help, and paying closer

attention in class. As noted, the missions of the Code and the Intervention Committee were aligned in stressing the importance of practices established and supported by the school, such as Assignment Logs and Learning Time.

Care and relationships between students and teachers and **trust** among all school actors were important for the smooth implementation of the Intervention Committee. Committee members had to know what was going on in a student's life to mete out effective interventions. Further, the interventions required students to assume accountability, undergirded by more intensive monitoring of their academic behaviors and support. This synergistic interplay of accountability and support worked because of the trust and positive relationships that existed in the school.

Teacher accountability was also tied to the intervention process because when administrators met with teachers about student failure, they asked whether the expected steps had been followed: had teachers tried interventions and attempted to identify the root cause of failure before referring students to the Intervention Committee? Administrators reported holding teachers with high student failure rates accountable for following the process.

The process is not unique to Lakeside. What was somewhat unusual was the focus on academics rather than behavioral disruptions, made possible by the **safe and orderly environment** and absence of significant student behavioral problems.

4. Riverview: Increasing Enrollment in Advanced Courses

Description

Administrators, faculty, and students at Riverview described access to Advanced Placement and honors courses for all students and low-income minority students in particular as a priority. Administrators and teachers described this as an effort to increase inclusivity at the school—a key lever to provide greater learning opportunities for a broad spectrum of the student population. The faculty was reported to be committed to making “honors students” out of regular achievers. Similarly, a major goal was to make sure students got the highest level of education possible, with a two-pronged school-wide strategy that 1) increased the number of AP/honors-level courses while protecting their quality and 2) encouraged more students to enroll in these courses. While the district policy allowed students to choose AP/honors courses, teachers, assistant principals, and counselors at Riverview used proactive strategies to identify and encourage more regular-level students to enroll in challenging courses. These strategies included conversations between faculty and students (e.g. teachers encouraging students to enroll in an AP class) as well as “behind the scenes” or “back channel” discussions between faculty and counselors and assistant principals to identify students likely to succeed in honors or AP courses.

Riverview had a long reputation among district high schools for its success in preparing students for college. Access to advanced courses seemed much higher than at the other case study schools, and

was accompanied by higher rates of enrollment and, importantly, passing scores on AP exams. Riverside also had structured the curriculum to provide options to appeal to varied interests. For example, students interested in English did not have to stop with Advanced Placement English Literature; the school also offered Linguistics as an additional option. Similarly, students talented in math could take differential equations. Only one other high school in the district had a higher percentage of students taking advanced courses.

How Increasing Enrollment in Advanced Courses Supported Increasing Student Ownership and Responsibility

Encouraging students to enroll in accelerated courses was one way in which Riverview instituted high **academic press** and helped to increase students' ownership of and responsibility for their learning. Administrators, teachers, and students described high expectations for students in AP/honors level courses, and many students, in turn, were described as having high expectations for themselves. Their success hinged on taking ownership for their own learning. For example, the more rigorous in-class and out-of-class work expected of AP and honors courses demanded organization, engagement, the timely completion of assignments, preparation for assessments, and participation in challenging class discussions. An additional benefit was that students in higher-level courses were exposed to habits of mind and practices that had value beyond the academic curriculum.

Academic support was a crucial ingredient for helping students succeed in higher-level courses. One manifestation was the school-wide expectation that all teachers offer tutoring after school. Additionally, counselors and teachers described meetings in which they encouraged struggling students, and if applicable their parents, to remain in advanced courses.

In general, a sense of **trust** existed in the school and was often described as enabling **relationship building and a sense of caring** between teachers and students. Teacher-student trust supported efforts to move students into more advanced courses by increasing students' willingness to work hard.

The school's **stability**, evidenced by the lack of transience among teachers and guidance counselors, allowed for ongoing support for moving students into more advanced coursework. The principal, although only in the second year as school leader, was committed to pushing this practice as a means to close gaps between the perceived "two schools within a school."

The school had **teacher accountability** mechanisms, such as department-level walk-through evaluations and a formal teacher evaluation program provided by the district. However, we found no evidence that teachers were held accountable for ensuring student movement into more advanced courses. As described previously, this practice was more a "professional commitment".

Examples of **individual and collective teacher efficacy** emerged in discussions of advanced course curricula. Evidence indicated that teachers of advanced courses often increased their expectations and provided challenges to match students' abilities. These teachers also had more influence over the curriculum and could enrich lessons with extra material to engage and challenge students. Counselors

collectively believed more students could excel in higher-level courses, and leveraged their familiarity with students' profiles and their relationships with them to guide them into advanced courses when working on schedules.

5. Valley: AVID Program

Description

All middle schools and high schools in the district have AVID (Advancement via Individual Determination) programs a national program designed to promote college readiness and increase school-wide performance and learning. Valley, in particular, used the program to help increase students' ownership and responsibility for the own learning.

At Valley, AVID was considered an honors program, focusing on college readiness for the sizeable majority of students who would be the first in their family to attend college. Approximately 9 percent of students participated, with many continuing participation from middle school. While teachers could identify and recommend additional students for the program, our interviews suggested that it was nearly at capacity and additional recruitment was not a priority. AVID functioned as an elective course, teaching organizational skills (e.g., using binders, time management with a planner, Cornell Notes); writing skills; exploration of college benefits and support in the application process (e.g., careers that require a postsecondary education, guidance on filling out applications, getting fees waived for the SAT/ACT, and completing student aid and scholarship applications); academic tutoring; and participation in community service. AVID students also were expected to take an increasing load of honors or AP courses as they progressed through their sophomore, junior, and senior years.

How the AVID Program Supported Increasing Student Ownership and Responsibility

The AVID program focused on holding students accountable for meeting the program's expectations. Because the program was voluntary teachers emphasized to students that participation involved additional commitment and responsibility. Further, the national AVID program exemplifies a balance between **academic press** and **academic support**. AVID students in Valley were expected to exhibit positive social behavior, take rigorous courses, and adopt organizational and study skills that would prepare them for college. They also became personally invested in the goal of college attendance. While college attendance and success were clear outcome goals, strategies to increase student ownership toward those goals involved specific activities, such as keeping materials in binders, organizing class notes and summaries, using Cornell notes, taking an increasing number of honors classes, and applying for college admissions, scholarships, and financial aid. While AVID students were held accountable for these organizational processes, as well as their behavior and performance in their classes, students reported feeling supported by their AVID teacher. The AVID teacher reported that the school provided supplies such as binders when possible and expected students to take care of them. Replacements were available for defective supplies but the idea was to instill responsibility.

Expectations for AVID students were academic and behavioral, with the program addressing both

socio-emotional and academic needs. The AVID teacher reported visiting students in other classes when teachers reported misbehavior as a technique to hold students accountable and provide supports to help them meet expectations in all classes.

AVID also capitalized on relationships and a sense of care between students and their AVID teachers. Students described how the program supported their preparations for college, with teachers helping them conduct the college search, complete the application process, and find scholarship money. Students also reported that the main AVID teacher was accessible and open to conversations about many topics, indicating that the AVID teacher and tutors are involved with students, respect them, and do not give up on them.

The strength of Valley's AVID program was a result of the **stability of leadership** within the AVID program as well as a culture of **trust** between students and AVID leadership. The AVID leadership had run the program for several years, and students who remained with the program over multiple years forged deeper connections and stronger relationships with the staff.

We highlight AVID in Valley, which was identified as a lower value-added school, because it appeared to be a practice that helped increase students' ownership and responsibility for their academic success. This case demonstrates how some effective practices were observed in lower value-added schools, even if they only existed in pockets. The size and voluntary nature of the AVID program (e.g., students and parents signed a contract and could be "exited" if they did not meet expectations), would make effective scaling to the whole school a significant challenge.

6. Valley: The Challenge

Description

Teachers in Valley used mandatory tutoring or in-school suspension to hold students accountable for completing assignments and improving their test performance. The approach was not universally successful, however. Some teachers continued to struggle with getting students to turn in homework, while others only assigned a minimal amount. Teachers had the option of assigning behavioral sanctions if students did not show up for mandatory tutoring, but one core content area department attempted to shift responsibility for completing work or getting assistance onto students by turning mandatory tutoring into "the Valley Challenge." The "challenge" was for students to compete on a quiz, knowing they must come for extra help if they earned less than 81 percent, thus giving them more responsibility for their own achievement. The administration is tracking the results of this more voluntary program and will compare it to the existing mandatory tutoring program.

How the Valley Challenge Supported Increasing Student Ownership and Responsibility

The Valley Challenge illustrates how the academic department in Valley worked to support students in challenging themselves to exceed the minimum requirements. By using competition instead of coercion, the teachers pushed the ownership of academic success back onto students, reinforcing the message that they were in charge of academic outcomes. While this approach was just beginning at

our time in the school (making the evidence of its success limited), the department hoped that motivating students to score well in the competition would increase attendance at tutorials, increase engagement during class, and increase individual students' beliefs that they could master challenging objectives.

The unity of this department in attempting a new approach to tutorials demonstrated a **shared vision** among staff and a sense of **collective teacher efficacy**. After reflecting on current tutorial practices, teachers in this department recognized the limitation of their current approach, brainstormed possible solutions, and collectively attempted the Valley Challenge.

The Challenge was also supported by **trust** between leadership and faculty. In breaking away from the school-wide tutorial plan, this department needed the trust of school leaders to allow it to experiment and improve student outcomes. Without this trust, the department may never have launched the Challenge.

Finally, The Challenge was facilitated by **positive relationships and a sense of care**. The Challenge's goal was to avoid the perception of punishing students if they did not attend tutoring (e.g., by having to spend lunch with an assistant principal) and to encourage teachers to develop relationships and trust with students so they wanted to learn. This departmental team tried to improve student learning by focusing first on changing standard practices that had a negative connotation into ones about which students would feel more positive.

7. Mountainside: Junior Reserve Officer Training Corps (JROTC)

Description

Nationwide, the Junior Reserve Officer Training Corps (JROTC) prepares students at over 3,000 high schools for leadership roles, making them aware of their rights, responsibilities, and privileges as American citizens. It encourages graduation from high school. The curriculum teaches students self-discipline, confidence, and leadership skills. The program is conducted by instructors who are retired Navy, Army, Air Force, Marine Corps, and Coast Guard officers and enlisted personnel.

JROTC relies on a curriculum called the Leadership Education Training (LET) program that is generated by the national ROTC administration. This curriculum emphasizes citizenship, character and leadership development, and community service. Cadets learn about the elements of leadership, drill instruction and ceremonies, military customs, uniform inspections, physical fitness training, marksmanship, and military history. Community service activities, drill competition, field trips, marksmanship training, and other extracurricular activities augment classroom instruction. The military provides uniforms, textbooks, training aids, and a substantial portion of instructors' salaries. The commander at Mountainside attributed part of the program's success to its authentic curriculum that taught life skills such as financial planning among many others. He reported that keeping the curriculum in tune with students' lived experiences kept them engaged.

How JROTC Supported Increasing Student Ownership and Responsibility

As evidenced by shadowing observations of students' class days, JROTC at Mountainside contributed to increased cognitive and behavioral **engagement** through student ownership and responsibility. JROTC participants reported that the program supported academic achievement by focusing acutely on the literacy of incoming freshmen. This provided integrated support and accountability for students. Thus, **academic press** was intrinsic to the program and supported by the Leadership Education Training (LET) curriculum and culture of responsibility and high expectations. The program at Mountainside had high rates of graduation (98%), postsecondary enrollment (50%), and military attachment (25%).

Further, the program illustrated the enactment of school-wide facilitating conditions in the service of encouraging students to take responsibility for their learning, albeit for only a portion of the student body. For example, it fostered **care and relationships between students and teachers**. The program helped students feel connected to the school and provided a positive sense of family cohesion. One participant reported that the program helped establish relationships with students, adding that s/he "serves as a mentor for a number of kids in my program." Care and relationships between students and teachers were also evident in the commendation and celebration of student academic achievement through JROTC promotion ceremonies. While parental involvement was reportedly low in the school as a whole, the JROTC program successfully engaged parents through activities such as promotion ceremonies and field trips.

The JROTC program included various types of systemic performance **accountability**. The program set clear expectations for student performance. In addition, adults in the JROTC program were held accountable for performance. One JROTC instructor reported that s/he was evaluated by the principal, as well as ROTC cadet command (an external entity), and that s/he faced significant potential consequences from federal inspections. Lastly, students were held accountable. JROTC students and instructors reported that cadets were held to high standards within the program, including standards of dress, conduct, and academic success.

Further, Mountainside has had a JROTC program for over five decades, a sign of the program's **stability**. In the 2011-12 school year, it served an estimated 16 percent of students, many of whom were recruited from the JROTC program in the sole feeder middle school. Alumni of the program have gone on to universities and careers in the armed forces. The commander and the instructors **shared a common vision** for the program, partially by virtue of its affiliation with the national program. The goal of the national program is "to prepare cadets to meet the challenges and demands in the 21st Century."

Conclusion and Next Steps.

Increasing student ownership and responsibility for their academic success holds promise for raising student achievement in high schools, based both on the case study research presented here and prior research that links the elements of student ownership and responsibility with student outcomes.⁹⁹ Further, teaching students the academic behaviors and engagement strategies to take responsibility for their learning (e.g., going to class, doing homework, organizing materials, studying) can lead to more positive outcomes in college.¹⁰⁰ Drawing on intensive case studies of four high schools in Fort Worth, Texas, this report underscores the importance of student ownership and responsibility. While most of the findings on student ownership and responsibility came from one higher value-added school, evidence existed in the second higher value-added school of other levers to increase academic press and rigor. Furthermore, we also found pockets of practices in the lower value-added schools that contributed to student ownership and responsibility. While increasing student ownership and responsibility may not be easy, requiring that teachers and other adults in the school provide careful scaffolding, it is noteworthy that Lakeside – one of the highest poverty schools in the district – achieved success despite constrained resources.

Further, the findings from these case studies suggest that the higher value-added schools effectively raised student achievement for traditionally underserved students (i.e., economically disadvantaged, racial minority, and ELL) by developing, integrating, and aligning school-wide goals and processes that cut across the essential components of effective schools, serving as the glue to hold them together. We refer to these processes as school-wide facilitating conditions. To be clear, it was not the school's focus on increasing student ownership and responsibility alone that explained achievement results. Rather, it was the fact that this focus was integrated and sustained by the school-wide facilitating conditions and built on a set of foundational elements that supported school-wide efforts.

The next stage of the Center's work involves bringing district leaders, school leaders, and teachers together to collaborate in the design and implementation of an innovation to increase students' ownership and responsibility for their own academic success in other FWISD high schools. In this way, the central findings from this report will define a design challenge to guide a collaborative design process. A District Innovation Design Team (DIDT) will develop an innovation based on the research findings presented in this report, the broader research literature on effective practices, and a needs assessment on what aspects of student ownership and responsibility are currently in place in other high schools. School Innovation Design Teams (SIDTs) will pilot, adapt, and implement the innovation in three low value-added schools. As part of this process, schools themselves will also be studying and evaluating the impact with an eye to scaling up. The researchers in the Center will then study and evaluate this implementation, examine its impact, and assess the district's ability to support and scale up the interventions to additional high schools.

Appendix A: Data and Methods

The data in this report come from a comparative case study of four high schools in FWISD during the 2011-2012 school year. The school selection process is first described, followed by a description of the data, and then the analytic methods.

School Selection

The schools for this comparative case study were selected based on school-level value-added measures.¹⁰¹ In short, two had relatively higher value-added results and two had relatively lower value-added results. Specifically, school-level value-added models were estimated for high schools in FWISD based on assessments in math, reading/ELA, and science for grades 9-11, the high school grades tested by the state. The value-added results were calculated for both the 2010-2011 school year and the three-year average for the 2008-09, 2009-10, and 2010-11 school years. Aggregating results from three years of data and comparing the three-year average value-added results with the 2010-2011 school year results allowed for cross-validation of consistency. Additionally, value-added results were computed for each subject area for selected student subgroups: free- and reduced-price lunch (FRL, a measure of poverty), limited English proficiency (LEP), black, and Hispanic.

The FWISD value-added model measures the average test-score improvement among a school's students, while controlling for prior achievement and a large number of student characteristics, including gender, race/ethnicity, FRL, special education, at-risk status, gifted and talented, LEP, and whether the student was retained in grade or skipped a grade between the pre-test and post-test years. The model can be defined by the following four equations:

$$y_{tikg} = \xi_g + \lambda_g y_{(t-1)ik(g-1)} + \lambda_g^{alt} y_{(t-1)ik(g-1)}^{alt} + x'_{tikg} \beta_g + \alpha_{kg} + \epsilon_{tikg} \quad (1)$$

$$Y_{(t-1)ik(g-1)} = y_{(t-1)ik(g-1)} + v_{(t-1)ik(g-1)} \quad (2)$$

$$Y_{(t-1)ik(g-1)}^{alt} = y_{(t-1)ik(g-1)}^{alt} + v_{(t-1)ik(g-1)}^{alt} \quad (3)$$

$$Y_{tikg} = y_{tikg} + v_{(t-1)ik(g-1)} \quad (4)$$

where i denotes a student, k denotes a school, g denotes grade, t denotes time, *alt* denotes an alternate-subject test, and

y_{tikg} = true ability for student i in grade g of school k in year t .

Y_{tikg} = TAKS test score for student i in grade g of school k in year t .

$v_{(t-1)ik(g-1)}$ = measurement error for student i in grade g of school k in year t .

x_{tikg} = vector of demographic variables on student i in grade g of school k in year t .

α_{kg} = grade g of school k 's constant effect value-added.

Equation (1) states that a student’s posttest score is equal to the sum of a constant (ξ), the same-subject pretest and its slope parameter ($\lambda_g Y_{(t-1)ik(g-1)}$), an alternate-subject pretest and its slope parameter ($\lambda_g^{alt} Y_{(t-1)ik(g-1)}^{alt}$), the vector of student characteristics with its slope parameter ($x'_{tikg} \beta_g$), and an error term (ϵ_{tikg}). In other words, a student’s posttest score can be measured by the two pretests and the student’s characteristics (in this model, gender, race, English language learner status, FRL status, special education status, at risk status, gifted and talented status, and grade retention between the pre- and post-test years). A constant is also included to account for any shift in the student’s achievement between the pretest and posttest, and the remaining discrepancy is accounted for by an error term that captures any error that may result from student achievement measurements and inherent biases of the data. Hereafter, Y_{1ikg} and Y_{tikg} are used interchangeably to indicate the posttest. Similarly, Y_{0ikg} and $Y_{(t-1)ik(g-1)}$ are used interchangeably to refer to the pretest, time subscripts from all variables are dropped.

Equations (2), (3), and (4) state that a student’s knowledge cannot be perfectly measured by each test in the model—in this case, the posttest and the two pretests. In other words, a student’s true knowledge of a subject (as measured by $Y_{1ikg}, Y_{0ikg}, Y_{0ikg}^{alt}$) is only partially observed by the subject tests

($Y_{1ikg}, Y_{0ikg}, Y_{0ikg}^{alt}$, respectively). The fact that there are three equations—one for the posttest and two for the pretests—state that each assessment has its own measurement error, which is determined by individual test characteristics, such as the difficulty of test questions, the number of tested topics, and the number of question items. The model adjusts for measurement error in lagged test scores using standard errors of measurement (SEMs), using approaches described in Wayne Fuller’s *Measurement Error Models* (Wiley, 1986). It is important to adjust for pre-test measurement error to avoid underestimating the pre-test coefficient λ , because such underestimation would bias estimates of the demographic and value-added coefficients β and α .

Since Y_{0ikg}, Y_{1ikg} , and Y_{0ikg}^{alt} are not observable, equations (2), (3), and (4) can be substituted into equation (1), which yields an equation defined in terms of measured student achievement:

$$Y_{tikg} = \xi_g + \lambda_g Y_{(t-1)ik(g-1)} + x'_{tikg} \beta_g + \alpha_{kg} + \epsilon_{tikg} + v_{t_1 ikg} - \lambda_g v_{t_0 ikg} \tag{5}$$

$$Y_{tikg} = \xi_g + \lambda_g Y_{(t-1)ik(g-1)} + x'_{tikg} \beta_g + \alpha_{kg} + \epsilon_{tikg} \tag{6}$$

The new error term ϵ_{tikg} in equation (6) now includes both the original error component (ϵ_{tikg}) and the measurement error components ($v_{t_1 ikg}, \lambda_g v_{t_0 ikg}$). Moreover, the error term in the model ϵ_{tikg} is allowed to have a variance that differs across subjects, grades, and years but is identically independently distributed (i.d.d.) across students within each combination of subject, grade, and year. This makes the model a “T2” model that uses two consecutive years of assessment data to produce value-added results for a given growth year. As a result, regression (6) can be run separately by subject, grade, and year. Equation (6) can also be more simply understood as a regression of a student’s 2011 TAKS score (posttest) on the student’s 2010 TAKS score (pretest), a vector of demographic variables, and a vector of

dummy variables that indicates the school the student was enrolled in during the 2010-2011 school year.

Finally, the grade-level value-added results are then aggregated to the school level by calculating the weighted average by the number of students in each grade. The resulting value-added of each FWISD school is then ranked for each core, tested subject (i.e., reading, math, and science). One overall value-added estimate is then calculated by weighting the averages of the three value-added estimates of each subject by the number of students. Similar value-added estimates are also estimated for student subgroups based on race/ethnicity, LEP status, and economic disadvantage. The described analyses yield multiple value-added results for each school. Each school in the tested grades in the 2010-11 school year has a single-year overall value-added measure for 2010-11; a multiple-year overall value-added that averages results for 2008-09 through 2010-11; single-year value-added measures for the 2010-11 school year specific to student subgroups (black, Hispanic, ELL, special education, and FRL); and multiple-year value-added measures that cover the same subgroups for all three school years.

Of the 14 high schools in FWISD, one was too new to have enough data to provide a value-added estimate. Two were excluded from the case study selection because their special admission requirements made it hard to compare them to other schools without those admission processes. One high school was excluded from school selection due to district request. This left 10 candidates for selection. The value-added estimates and ranks were then considered alongside school demographic characteristics, state accountability rankings, graduation rates, and dropout rates when selecting schools. The goal was to identify the two highest and two lowest value-added schools while balancing graduation and dropout rates and ensuring similar demographic characteristics between the higher and lower value-added schools. Finally, the school selection process was conducted in such a way that the research team visiting the schools did not know prior to the first visit whether the school was selected as a higher or lower value-added school.

Selecting schools on the basis of value-added indicators for multiple subgroups in multiple subjects is not a simple task. School-level value-added measures also vary even within the same school for different subgroups of students or for different subjects. This study includes two schools that have relatively high value-added measures for most student subgroups and subjects. We refer to them as Lakeside and Riverview. Lakeside is ranked first or second in value-added measures for most subgroups of students, but fell near the bottom for LEP students. Riverview was one of the most highly ranked schools in value-added for the student body as a whole as well as LEP, and black students, but was in the middle of the district for FRL students and near the bottom for Hispanic students. Both higher value-added (HVA) schools have graduation rates above 85%. The two schools with relatively low value-added measures are Valley and Mountainside. Valley has value-added measures that rank it near the bottom of the district when combining all subjects and all students, but its value-added measures in mathematics were above the district average. Valley also was near the top of the district for value-added for LEP students. Mountainside had the lowest value-added measure when combining all students and all subjects and for FRL and black students, but its value-added measures were closer to the middle of the district for Hispanic students. Both lower value-added (LVA) schools had graduation rates below 80%.

Data Collected

Data were collected in Fort Worth in three different time periods in the 2011-12 school year: Wave 1 in late November – early December 2011; Wave 2 in mid-late February 2012; and Wave 3 in late April – early May 2012. The last wave took place after students took STAAR/TAKS exams and before Advanced Placement exams. Data were drawn from focus groups (with students, teachers, student activity leaders, district parent liaisons); interviews with principals, assistant principals, guidance counselors, support personnel, teachers, students, and district personnel; observations in English, mathematics, and science classrooms; shadowing of students during their regular school day; and the collection of school and district artifacts. In addition to this fieldwork, we also obtained administrative, disciplinary, and course-taking data from the district. We also collaborated with the district to obtain survey data from teachers, students, parents and principals. Table A-1 below shows the amount of data collected by wave and data type.

Table A-1. Types and Amounts of Data Collected by Wave

Data type	Wave 1	Wave 2	Wave 3	Total
<i>Interviews</i>	80	82	56	218
School Administrators	4	15	2	21
Teachers	72	0	1	73
Deans of Instruction	0	3	2	5
Department Heads/Lead Content Teachers	0	21	0	21
Guidance Counselors	0	15	0	15
Support Personnel	0	24	11	35
Students	0	0	37	37
District Administrators	4	4	3	11
<i>Focus groups</i>	22	0	14	36
Students	11	0	1	12
Teachers	11	0	0	11
Student Activity Leaders	0	0	12	12
District Parent Liaison	0	0	1	1
<i>Observations</i>	138	128	51	317
Classroom Periods	138	128	8	274
Students Shadowed	0	0	37	37
Faculty/School Administrative Team Meetings	0	0	6	6
<i>Total</i>				571

Note: Teachers and other school personnel may have participated in more than one type of data collection. For example, some individuals may have been interviewed both as a teacher and a department head or lead content teacher (LCT). Similarly, a teacher may have participated in a general teacher focus group in Wave 1 and then the student activity leader focus group in Wave 3 due to his or her role as an athletic coach.

Interviews and focus groups

Data collection primarily focused on 9th- and 10th-grade students and teachers in English, mathematics, and science, although we balanced this focus with other data from key staff and a cross-section of the school (e.g., teacher focus groups spanned all grades and subject areas) to gain a comprehensive understanding of our schools. Table A-2 shows the types and amount of data collected from each case study school.

Table A-2. Types and Amounts of Data Collected by School

Data type	LVA Schools		HVA Schools	
	Mountainside	Valley	Lakeside	Riverview
<i>Interviews</i>	51	50	54	48
School Administrators	4	5	5	7
Teachers	18	19	18	18
Deans of Instruction	2	2	1	0
Department Heads/Lead Content Teachers	6	6	3	6
Guidance Counselors	2	4	3	2
Support Personnel	9	5	16	5
Students	10	9	8	10
<i>Focus groups</i>	9	8	9	9
Students	3	3	3	3
Teachers	3	3	3	3
Student Activity Leaders	3	2	3	3
<i>Observations</i>	76	81	87	78
Classroom Periods	66	72	73	68
Students Shadowed	10	9	8	10
Faculty/School Administrative Team Meetings	0	0	6	0

All principals, assistant principals, guidance counselors, and deans of instruction (if applicable) were interviewed. The principal (or other key school leaders in the case of two schools where the principal was not available in Wave 3) were interviewed twice. Six teachers in each of the mathematics, ELA, and science departments were interviewed (and observed) in each school, for a total of 18 teachers per school. These teachers were chosen because they taught classes designed for 9th- and 10th-grade students. In three of the schools, we observed all the 9th--and 10th-grade teachers, while in the fourth school, because of its size, we sampled all 10th-grade teachers and additional -grade teachers so that six teachers in each core subject were included. All department heads and lead content teachers (LCT) in the three targeted subjects were interviewed (in one school, these roles were held by the same person). Other support personnel were sampled in two different ways. First, individuals with specific roles in the school, such as special education, LEP coordinators, and testing coordinators were interviewed. Second, we used a

snowball sampling technique to interview school personnel who were identified by other participants as serving in key roles. These roles included, for example, stay-in-school coordinators, coordinators for programs working with students considered at risk, and parent liaisons.

We conducted three types of focus groups. First, teachers who were not sampled for individual interviews were invited to participate in focus groups. These groups were designed to get a wider representation of teachers, including those teaching subjects other than mathematics, English, and science as well as teachers in those subjects for students in grades 11 and 12. About eight teachers participated in each focus group.

Second, we conducted focus groups with students who had been selected on the basis of grade level and course selection patterns. We focused on students in grades 10 to 12 because they were more familiar with their schools, although some 9th-graders did participate in some focus groups. Student focus groups were organized to include one for students taking primarily “advanced” courses, one for students taking primarily “general” courses, and one for students enrolled primarily in “remedial” or “basic” classes. Students were selected based upon the convenience of their schedules with the goal of having a cross section in each focus group that broadly represented the demographics of students in that course selection pattern.

Because our initial data analysis highlighted the importance of extracurricular activities in engaging students, we also conducted focus groups in Wave 3 with teachers and other adults who supervise these activities to learn more about how they were manifested in the school. Student activity leaders were sampled to ensure representation from activities in five areas: sports, community service, academic focus (i.e., poetry club, academic competition groups), social clubs (i.e., manga club, prom committee), and programs/structures provided by the school to engage students (i.e., AVID, after school programs, JROTC). Further, we attempted to include activities that served both small and large numbers of students.

District administrators were selected to focus on areas of responsibility that included the following: direct responsibility for our case study schools (i.e., secondary directors); curriculum and instruction units; high-school reform; multicultural and English for Speakers of Other Languages (ESOL) program services; and the deputy superintendent of educational programs and student support. In addition to interviews with district administrators, we conducted a focus group with four parent liaisons assigned to multiple schools by the district.

We observed some of the administrative, departmental, and new teacher meetings in one school. A structured observation log was used for these observations. Finally, we also interviewed 13 administrators from the district central office to get their perspectives on the case study schools in particular and activities or elements that facilitate high school effectiveness in general. The types of district administrators interviewed included assistant superintendents, those who oversaw the case study schools, personnel who oversaw programs for selected student populations, and curriculum directors for literacy, math, and science. Appendix F presents our findings on district perceptions of high school effectiveness.

Classroom observations (CLASS-S)

We observed and videotaped a total of 274 class periods of English Language Arts (ELA), math, and science. The same teachers who participated in the interviews were also observed. Classroom observations focused on 9th- and 10th-grade classrooms because these grades were the basis for most of the assessment data in the value-added measures. Four class periods per teacher were videotaped and coded by trained observers. In most cases, two class periods were observed in Wave 1 and two were observed in Wave 2. A few observations that were missed due to teacher absences or scheduling difficulties were made up in Wave 3.

We used an observational tool called the CLASS-S (Pianta et al., 2011) to assess teacher-student interactions. We observed and coded the following domains and dimensions using the CLASS-S framework: Emotional Support (positive climate, negative climate, teacher sensitivity, regard for adolescent behavior), Classroom Organization (behavior management, productivity, instructional learning formats), and Instructional Support in the classroom (content understanding, analysis and problem solving, quality of feedback, and instructional dialogue), and Student Engagement.

The CLASS-S protocol is designed to code 20-minute segments. Because the classes were either 45 or 90 minutes long depending on the school schedule, each class period had two or three observation segments. Thus the 274 classroom videos represent a total of 603 20-minute observation segments for CLASS-S coding. Inter-rater reliability was calculated on approximately 20% of the observation segments which were double coded (i.e., two raters coded the same segment independently, then reconciled discrepancies and came to consensus on the scores). Of the 127 segments that were double-coded, overall exact point reliability was 43 percent, and one-point reliability was 90 percent.

See Appendix B for additional information on the classroom observations.

Shadowing

During Wave 3 of our data collection in spring 2012, we conducted 37 student shadowing observations in which a member of the research team accompanied a student through his or her school day. After students were shadowed, they were interviewed using a semi-structured interview guide designed to elicit their perspectives on things observed during the shadowing experience and ask them about their experience at the school. Students in each school were selected based on the level of courses they typically took -- four to five who took mostly advanced (Advanced Placement, pre-AP, or honors) classes and four to five who took mostly "on-level" or "regular" classes. We tried to ensure that they sample reflected the broader student body demographics in terms of gender, race/ethnicity, and free/reduced lunch status. Students who had participated in focus groups were not eligible to participate in the shadowing observations or interviews.

One researcher followed each student throughout his or her entire school day (with the exception of restroom visits and lunch) using a structured observation log. Every five minutes, the researcher recorded data in an electronic shadowing log, noting the class period, precise time, course subject, course track, location, the teacher's expectations of the student (what the student was supposed to be doing), the academic nature of that task (i.e., related to content or not), nature of student engagement in that task (active engagement, passive engagement, not engaged), and the behavior the student in engaging in if he

or she was off-task, and with whom the student was interacting. The types of activities that teachers expected students to engage in included: whole class discussion, direct instruction, pair or group work, individual work, an interactive or student-led activity, taking a test or quiz, transitioning between activities, other academic activities (includes watching or giving a presentation, general studying, watching a film or video, or academically-oriented talk with the teacher), non-academic activities (such as socially-oriented talk with the teacher, handing out report cards, saying the pledge, school announcements), other (for non-core subjects, this includes doing ROTC drills and playing sports in gym class), and nothing (i.e., there is nothing the student is supposed to be doing at that moment).

See Appendix C for more information on the student shadowing observations.

Surveys and administrative data

We collaborated with the district to obtain survey data from students, teachers, parents, and principals to further understand the processes, programs, and practices that might explain school effectiveness. The surveys were administered by the district across all schools, not just in the four case study high schools. This report uses data from the teacher and student surveys only. To maintain confidentiality of principals, we do not report principal survey data in this report. Due to low response rates on the parent survey (an average of 7% at the high school level), we do not report parent survey results.

The student survey was administered to students in grades 9, 10, and 11 in November 2011. A total of 10,827 high school students completed surveys, representing approximately 70% of enrolled 9th to 11th-grade students. Response rates of those students in the four case study schools ranged from 72% to 91%. Demographic differences between survey respondents and the total enrolled population across the high schools were slight, with females and Hispanics being slightly overrepresented in the survey sample. Factor analyses were then performed separately on principal components of each survey construct. The student survey measured the following constructs: academic engagement, personalization, parent press toward academic achievement, peer support for academic achievement, student sense of belonging, student study habits, how well the school prepared students for successful futures, school climate, disaster preparation, the degree to which students felt expectations for academic press, the degree to which students felt challenged academically, the degree to which students showed responsibility through class participation, the degree to which the school culture fostered responsible behavior, school safety, bullying, and parent connections. See Appendix D for more information on the student survey.

The teacher survey was administered in January 2012. Across the district high schools 577 teachers completed the survey, for an overall response rate of 44%. Response rates within the four schools varied considerably, ranging from 30% to over 60% of teachers. Factor analyses of principal components were performed separately on each of the proposed survey constructs. Constructs included: bullying, data use, efficacy, instructional program coherence, personalization-social, school leader instructional support, teacher-principal trust, teacher-teacher trust, supporting quality instruction, systemic performance accountability, supportive and shared leadership, expectations for postsecondary education, personalization-school action, teacher accountability, teacher outreach to parents, teacher-parent trust, and provision of time to collaborate. More information on the teacher survey can be found in Appendix E.

Finally, the district provided a comprehensive set of administrative data from the past 10 years, or since

the start of the systematic collection of that data if it was more recent. The administrative data sources included student discipline, attendance, Advanced Placement (AP) and other advanced course-taking, AP exam scores, teacher characteristics, student characteristics, and graduation and dropouts.

Analyses of administrative data are presented as school-level means or percentages, with significance level calculated through OLS linear regression on school dummy variables, with comparison group as the remaining teachers and students (n schools=13).

Data Coding and Analysis

For the interviews, focus groups, and observations conducted in our four case study schools we employed a multi-stage approach to analyze researchers' field notes. Field notes were kept in two forms: participant interaction forms (Miles & Huberman, 1994), which were completed by researchers within 24 hours of conducting an interview or moderating a focus group; and school-level analysis forms, which were completed by the members of each school's research team together during the first week-long visit. These served as inputs for generating a cross-school comparison matrix that compared schools across the essential components that guided our work (see below for information on the essential components).

These three types of documents provided the basis for engaging in the iterative process of refining our instruments and planning our next field visit. Our analyses were guided by our core research questions: *What are the distinguishing characteristics between higher and lower value-added schools? How did these differences develop and how are they orchestrated and supported?*

In summer 2012, we embarked on an in-depth cross-case analysis. A team of 19 people systematically coded the interview and focus group data using NVivo, a qualitative analysis software program (QSR International, 2011). We used the analytic technique of explanation building (Yin, 2009) to understand how and why the essential components developed (or did not develop) in our schools. This work was iterative and involved continuously refining claims about the school as additional evidence was examined. We also engaged in directed content analysis (Hsieh & Shannon, 2005) to code items for both our essential components and themes that cut across the essential components. The following guiding principles framed our analytic work:

- Focusing on answering our core research questions;
- Discerning findings that lead us to a “design challenge” for Fort Worth;
- Establishing a process that is rigorous and systematic and allows for tracking claims back to the data/evidence and allows us to return to the data and evidence for each finding; and
- Maintaining the essential components as an analytic frame.

To meet these principles, the work was spread among four teams, one for each school. Each team had four to six members. All but one team member had first-hand experience collecting the fieldwork data in that school. School-based teams were responsible for coding and analyzing all data collected about that school and writing a comprehensive case report. Using an emergent, inductive approach to coding, every member of a school team read through seven to eight key transcripts, selected in advance to include the fieldwork notes and comparison tables created after each visit, the principal transcripts, and data from

selected teacher and student focus groups. The school team then met to develop an emergent coding framework that was grounded in the data (Glasser and Strauss, 2007). In addition we used an *a priori* coding scheme of our essential components and cross-cutting facilitating conditions and themes (i.e., goals, trust, locus of control, structures that support or inhibit goals, rigor and academic press, student culture of learning, and student responsibility). The general approach was to look at each school as a system. That is, the school is the unit of analysis. Our analysis centered on understanding each school in-depth, while maintaining a focus on the essential components within each school, as well as additional facilitating conditions that emerged. School case teams met weekly for about four hours. In between meetings, team members coded interview and focus group transcripts.

In addition, we held cross-case comparison meetings involving all four school teams every other week for approximately three hours. These meetings had two goals: to ensure that definitions were being applied consistently and reliably across schools in the coding process, and to flag emerging findings about each school to begin making comparisons across schools.

Once all interview and focus group data were coded, school-level teams developed a narrative of each essential component. Coders strove to provide a thorough, well-supported set of claims about the drivers and/or inhibitors of essential components, as well as the practices and policies through which these were enacted.

Developing case reports

To write the school-level case reports, each school team was asked to address the following questions:

- What is the context in which this school operates and how does the context affect school processes?
- What are the key characteristics of the school that enable (or impede) development of the essential components?
- What features/processes/practices in the school serve as drivers (or inhibitors) of school outcomes and essential components?
- Describe the nature of each essential component in the school. How did it develop? How is it enacted and supported?

Using emergent, grounded theory allowed for a more iterative analytic process that enhanced the interrogation of the claims being made, adding to the internal validity (Patton, 2002). It also permitted more explicit attention to the themes/facilitating conditions that cut across components and explicit testing of emerging hypotheses and triangulation among different types of data, which added to the validity of process (Patton, 2002).

With the school-level case reports as our base, we held an intensive set of cross-case meetings to look systematically across the cases to build cross-case explanations. This process was used to note the presence or absence of differences between HVA and LVA schools. Each team member read all four case reports in their entirety to ensure that we thoroughly understood of each case. Next, multiple people were

assigned to conduct cross-school analyses of particular components, cross-cutting themes, key findings, and the quantitative data (surveys and district administrative data). The purpose was to identify the differences between the higher and lower value-added schools and explain what contributed to these differences in the context of FWISD.

Appendix B: Quality of Classroom Instruction Report

Data Collection

To assess the quality of classroom instruction across our four case study schools, we targeted 10th-grade English/language arts, mathematics, and science classes. Eighteen teachers, with six from each of the three major content areas, from each school were selected for observation. These teachers were sampled because they taught classes designed for 9th- and 10th-grade students. Due to the moderate size of three of the schools, we observed all the 9th- and 10th-grade teachers. In the fourth school, we sampled all 10th-grade teachers and additional 9th-grade teachers to ensure that six teachers in each core subject were included. Data collection focused on 9th- and 10th-grade classrooms because those grades produced most of the assessment data used to calculate the value-added measures.

Researchers videotaped participating teachers' instruction during the same class period on two consecutive days during the Wave 1 visits (late November to early December) and Wave 2 visits (mid-late February). Eight make-up observations occurred during the Wave 3 visit (late April to early May) for observations that were missed due to teacher absences or scheduling difficulties. Thus, most teachers were observed four times. The total number of class periods observed was 66 in Mountainside, 72 in Valley, 73 in Lakeside, and 68 in Riverview. Videographers logged the sequence of activities that occurred in the classroom, collected student assignments, and recorded student demographics.

The CLASS-S framework is designed for raters to watch either live or video classroom instruction for at least 20-minute segments while taking notes on the CLASS-S indicators. Then they take 10 to 15 minutes to review their manual and assign scores to each domain. Regular class period observations of 40 to 50 minutes were evenly divided into two segments. For Valley, which uses block scheduling with about 90-minute class periods, each observation was divided evenly into three segments. Due to teacher absences and attrition from the study, between 1 and 12 segments were coded for each of the 72 teachers and the 274 classroom videos represent a total of 603 observation segments for CLASS-S coding. Table B-1 shows the number of observational segments in each school, by subject and track.

Table B-1. Number of Observational Segments by School

Subject	LVA Schools		HVA Schools		
	Mountainside	Valley	Lakeside	Riverview	Combined
Mathematics	37	70	44	43	194
Advanced classes	19	24	22	27	92
Non-advanced classes	18	46	22	16	102
English/Language arts	44	70	48	40	202
Advanced classes	22	23	28	24	97
Non-advanced classes	22	47	20	16	105
Science	41	72	48	46	207
Advanced classes	11	24	24	27	86
Non-advanced classes	30	48	24	19	121
Total	122	212	140	129	603

As research on tracking in high schools suggests that higher track classes tend to have higher quality instruction than lower track classes, we wanted to assess whether this was occurring in our cases study schools, as well as whether higher value-added schools “compressed” the instructional quality between their higher and lower track classes more than lower value-added schools. Observed class periods were selected to ensure a number of honors, pre-AP, AP, and other advanced classes were observed in each school. However, we did not observe the same teacher teaching in both types of classes.

These classroom observations were coded using the Classroom Assessment Scoring System – Secondary (CLASS-S), developed by Robert Pianta, Bridget Hamre, Nancy Hayes, Susan Mintz, and Karen LaParo. The CLASS was originally designed to measure preschool and early elementary teachers’ instructional practices. CLASS assesses the quality of teachers’ social and instructional interactions with students as well as the intentionality and productivity evident in classroom settings. The focus of the CLASS is on what teachers do with the materials they have and on their interactions with students, rather than on a particular curriculum, lesson format, or the physical setup of the classroom. The original CLASS was developed based on an extensive literature review as well as on scales used in large classroom observation studies in the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and the National Center for Early Development and Learning (NCELD) Multi-State Pre-K Study. Dimensions were derived from the review of constructs assessed in instructions for conducting classroom observation in child care and elementary school research, focus groups, and extensive piloting. Dimensions are based on development theory and research suggesting that interactions between students and adults are the primary mechanism of student development and learning. The greatest distinction between the CLASS-S and the other versions of the CLASS lies in the Instructional Support domain where Content Understanding and Analysis and Problem Solving have the place of Concept Development and Language Modeling has been eliminated (Pianta et al., 2007). Table B-2 shows the major domains of CLASS-S, the dimensions within these domains, and the indicators used to represent the dimensions.

Table B-2. Overview of 2011 CLASS-S Dimensions, Domains, and Indicators

Domains	Dimensions	Indicators
Emotional Support	Positive Climate	<ul style="list-style-type: none"> • Relationships • Positive affect • Positive communications • Respect
	Negative Climate	<ul style="list-style-type: none"> • Negative affect • Punitive control • Disrespect
	Teacher Sensitivity	<ul style="list-style-type: none"> • Awareness • Responsiveness to academic and social/emotional needs and cues • Effectiveness in addressing problems • Student comfort
	Regard for Adolescent Perspective	<ul style="list-style-type: none"> • Flexibility and adolescent focus • Connections to current life • Support for student autonomy and leadership • Meaningful peer interactions
Classroom Organization	Behavior Management	<ul style="list-style-type: none"> • Clear expectations • Proactive • Effective redirection of misbehavior • Student behavior
	Productivity	<ul style="list-style-type: none"> • Maximizing learning time • Routines • Transitions • Preparation
	Instructional Learning Formats	<ul style="list-style-type: none"> • Learning targets/organization • Variety of modalities, strategies, and materials • Active facilitation • Effective engagement
Instructional Support	Content Understanding	<ul style="list-style-type: none"> • Depth of understanding • Communication of concepts and procedures • Background knowledge and misconceptions • Transmission of content knowledge and procedures • Opportunity for practice of procedures and skills
	Analysis and Problem Solving	<ul style="list-style-type: none"> • Inquiry and analysis • Opportunities for novel application • Metacognition
	Quality of Feedback	<ul style="list-style-type: none"> • Feedback loops • Scaffolding • Building on student responses • Encouragement and affirmation

	Instructional Dialogue	<ul style="list-style-type: none"> • Cumulative content-driven exchanges • Distributed talk • Facilitation strategies
Student Engagement		<ul style="list-style-type: none"> • Active engagement

Coders rated each dimension as low (1, 2), mid (3, 4, 5), and high (6, 7). While the CLASS manual provides general scoring guidelines (see Table B-3), it notes that “observers should view the dimensions as holistic descriptions of classrooms that fall in the low, mid, or high range.”

Table B-3. CLASS-S General Scoring Guidelines

Low		Mid			High	
1	2	3	4	5	6	7
The low range description fits the classroom/teacher very well. All, or almost all, relevant indicators in the low range are present.	The low range description mostly fits the classroom/teacher but there are one or two indicators that are in the mid-range.	The mid-range description mostly fits the classroom/teacher, but there are one or two indicators in the low range.	The mid-range description mostly fits the classroom/teacher very well. All, or almost all, relevant indicators in the mid-range are present.	The mid-range description mostly fits the classroom/teacher, but there are one or two indicators in the high range.	The high range description mostly fits the classroom/teacher, but there are one or two indicators in the mid-range.	The high range description fits the classroom/teacher very well. All, or almost all, relevant indicators in the high range are present.

Note. From CLASS-Secondary Manual (Pianta et al., 2011)

The CLASS has been used by teacher preparation programs and for teacher performance assessment, professional development, program monitoring, and research and evaluation. Research has found that students in classrooms with higher CLASS scores make greater academic and social gains than those in classrooms with lower CLASS scores, though most of this comes from studies conducted at the preschool and elementary level. Positive correlations have been found between algebra end-of-course exams (EOCs) and the CLASS-S domains. The highest correlation was Classroom Organization and the lowest was with Emotional Support (Bell, Gitomer, McCaffrey, Hamre, & Pianta, 2011).

Researchers at the Educational Testing Service (ETS), the University of Virginia, and the RAND Corporation are currently exploring best practices in implementing the CLASS-S. The study’s goals are (1) continue to develop and refine a theoretically driven and well-researched CLASS for secondary settings, (2) determine the validity and reliability of this system for secondary classrooms, and (3)

understand the relationships among classroom characteristics, processes and outcomes. The CLASS-S is also currently being used in the Measures of Effective Teaching (MET) project funded by the Bill & Melinda Gates Foundation, which is working to develop and test multiple measures of teaching effectiveness. Some initial findings from the MET project found that the CLASS and CLASS-S (considered together) were positively associated with student achievement gains in both math and ELA. Further, this study found that rating reliability is improved if at least four lessons are observed and coded by multiple observers, which is consistent with the practices used in our study.

Coding and Reliability

Observation rating was completed after each wave of data collection. The rating team consisted of nine raters who completed a live or online training course and were certified by Teachstone, a company that oversees the training of the CLASS observation tools. Before the team individually rated videos, all raters watched two segments of different teachers and came together to discuss any discrepancies and decide on a uniform set of ratings. Raters were randomly assigned to segments so that the same rater did not rate more than one segment of a particular teacher from a single visit.

Video observation allowed for ongoing inter-rater reliability checks. Acceptable reliability on the CLASS-S occurs when raters are within one point of each other 80 percent of the time (Pianta et al., 2011). With 12 possible dimension scores for each segment rated, raters should be within one point of each other on 10 of the 12 dimensions. To assess ongoing inter-rater reliability, 20 percent of the videos were randomly selected for double rating. Rather than averaging the ratings of the videos that were double rated, consensus rating was used. Consensus rating was not only a means of assessing inter-rater reliability, but the frequent consensus sessions also served as an ongoing means of ensuring a shared understanding of the measures.¹⁰² Raters were randomly assigned to code segments, and then raters were randomly assigned to act as second coders for 20 percent of the segments. The two raters met to discuss rating disagreements and arrive at a consensus. Consensus codes were entered as the final codes. If at any point that the two raters did not meet the 80 percent-one-point standard across all segments rated, a third person rated the segment as well. Third raters were needed in 15 instances. Of the 127 segments that were double-rated, overall exact point reliability was 43 percent, and one-point reliability was 90 percent. Table B-4 shows inter-rater reliability information for CLASS-S coding.

Table B-4: Percentage of inter-rater reliability by wave of data collection

Wave	Segments Coded	Segments Double coded	Percent Exact Agreement	Percent agreement within 1 point	Percent agreement within 2 points (across all possible codes)
1	302	62	41%	88%	98%
2	284	61	44	91	98
3	17	4	50	98	100
Total	603	127	43	90	98

Results

We first present the findings in Table B-5.

Table B-5. CLASS-S Scores by School

	LVA Schools		HVA Schools		Combined
	Mountainside	Valley	Lakeside	Riverview	
<i>Emotional Support</i>					
Positive Climate	4.40***	4.91	4.93	4.94	4.82
Negative Climate	6.24	6.17***	6.53**	6.63***	6.36
Teacher Sensitivity	4.34***	4.69	4.96**	4.96*	4.74
Regard for Adolescent Perspectives	2.90***	3.23	3.49*	3.43	3.26
<i>Organizational Support</i>					
Behavior Management	5.05***	5.25*	5.91***	5.61	5.44
Productivity	5.07**	5.15**	5.68***	5.56*	5.34
Instructional Learning Formats	4.33*	4.40*	4.76*	4.79**	4.55
<i>Instructional Support</i>					
Content Understanding	4.49	4.37*	4.60	4.68	4.52
Analysis and Problem Solving	2.42**	2.58	3.03***	2.78	2.70
Quality of Feedback	3.85	3.75*	4.26***	3.85	3.91
Instructional Dialogue	3.18	3.23	3.57**	3.22	3.30
<i>Student Engagement</i>	4.39**	4.58	4.83*	4.88*	4.67

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean rating compared to the mean from the other schools combined.

Emotional Support

The Emotional Support domain measures these characteristics: positive climate, negative climate, teacher sensitivity, and regard for adolescent perspective. In general, higher value-added schools had higher ratings for the Emotional Support dimensions than the lower value-added schools, with these differences statistically significant in all areas except positive climate. Additionally, advanced classes had higher average Emotional Support ratings, and these differences were statistically significant in all dimensions except teacher sensitivity.

Positive climate reflects the emotional connections and relationships among teachers and students, and the warmth, respect, and enjoyment communicated by verbal and non-verbal interactions. Indicators of this dimension included positive relationships, positive affect, and positive communications, and respect. Lakeside, Riverview, and Valley had similar average positive climate scores, while Mountainside had the

lowest ratings. The differences between the high and lower value-added schools were not statistically significant for positive climate. Advanced classes had higher average positive climate than non-advanced classes, and this difference was statistically significant.

Negative climate encompasses the overall level of negativity among teachers and students in the observed class. This variable has been reverse coded, so a higher score reflect less negative climate. Indicators of negative climate include negative effect, punitive control, and disrespect. On average, higher value-added schools had better negative climate ratings than the lower value-added schools, and this difference was statistically significant. Non-advanced track classes tended to have worse negative climate ratings than the advanced classes across all four schools, and this difference was statistically significant.

Teacher sensitivity reflects the teacher's responsiveness to the academic and social/emotional needs and developmental levels of individual students and the entire class, and the way these factors impact students' classroom experiences. Indicators of teacher sensitivity included awareness, responsiveness to academic and social/emotional needs and cues, effectiveness in addressing problems, and student comfort. On average, higher value-added schools had better teacher sensitivity scores than lower value-added schools, and this difference was statistically significant. Teacher sensitivity scores tended to be higher in advanced classes than they were in non-advanced classes, though these differences were not statistically significant.

Regard for adolescent perspectives focuses on the extent to which the teacher is able to meet and capitalized on the social and developmental needs and goals of adolescents by providing opportunities for student autonomy and leadership. It also considers the extent to which student ideas and opinions are valued and content is made useful and relevant to adolescents. Indicators of regard for adolescent perspectives include support for student autonomy and leadership, meaningful peer interactions, flexibility, and connections to current life, student ideas and opinions. On average, ratings on regard for adolescent perspective tended to be low, with teachers scoring in the lower end of the mid-section of the rating scale. The higher value-added schools had higher ratings on average for this measure, and this difference was statistically significant. Advanced courses tended to have higher scores than non-advanced courses on this measure across schools, with Riverview and Valley having the widest gaps. The difference in ratings was significant across tracks.

Organizational Support

The Organizational Support domain includes behavior management, productivity, and instructional learning formats. In general, higher value-added schools showed greater Organizational Support than lower value-added schools, although Valley had higher ratings than Mountainside. Additionally, advanced courses tended to receive higher Organizational Support scores than non-advanced classes, with statistically significant differences across tracks in all dimensions of organizational support. The gap between tracks tended to be smallest in Mountainside.

Behavior management focuses on the teacher's use of effective methods to encourage desirable behavior and prevent and redirect misbehavior. Indicators of positive behavior management include clear expectations, proactive responses by the teacher in situations where behavior issues are likely to arise, and effective redirection of misbehavior. On average, higher value-added schools had better behavior

management ratings than lower value-added schools, with the difference statistically significant, holding constant track, grade, and subject. Behavior management scores tended to be higher in advanced classes than in non-advanced classes, and the difference was statistically significant.

Productivity considers how well the teacher manages time and routines so that instructional time is maximized. Indicators of productivity include maximizing learning time, evidence of routines, and frequent transitions. Average productivity ratings were higher in Lakeside than in Riverview, the higher value-added schools, and the difference was statistically significant. On average, advanced classes had higher productivity ratings than non-advanced classes, with the largest gaps at Lakeside and Valley and the narrowest gap at Mountainside. The difference among advanced and non-advanced tracks was also statistically significant.

The instructional learning formats measure focuses on ways in which the teacher maximizes student engagement through clear presentation of material, active facilitation, and the provision of interesting and engaging lessons and materials. Indicators include evidence of learning targets/organization, active facilitation effective engagement, and variety in modalities, strategies, and materials. Higher average instructional learning formats ratings were observed in higher value-added schools, and this difference was statistically significant. As with other Organizational Support measures, advanced courses tended to have higher instructional learning formats ratings, on average, than non-advanced classes, with these differences being statistically significant.

Instructional Support

The Instructional Support domain consists of content understanding, analysis and problem solving, and quality of feedback. In general, higher value-added schools had higher Instructional Support scores than lower value-added schools. These differences were generally statistically significant, but this was likely driven by the low scores of Mountainside. Advanced courses tended to receive higher Instructional Support scores than non-advanced classes.

Content understanding refers to both the depth of lesson content and the approaches used to help students comprehend the framework, key ideas, and procedures. Indicators of content understanding include demonstration by the teacher of deep understanding, effective communication of concepts and procedures, demonstration of background knowledge and misconceptions, and effective transmission of content knowledge and procedures. On average, higher value-added schools had slightly better average scores for content understanding than lower value-added schools, though the difference was not statistically significant. Across all four schools, advanced classes had higher content understanding scores, with the largest gap at Valley and the smallest at Lakeside. The difference across tracks was statistically significant.

Analysis and problem solving assesses the degree to which the teacher facilitates students' use of higher level thinking skills, such as analysis, problem solving, reasoning, and creating through the application of knowledge and skills. Indicators included opportunities for higher level thinking, problem solving, and metacognition. On average, analysis and problem solving received the lowest scores of all the CLASS-S dimensions. The higher value-added schools had higher average analysis and problem solving scores than did the lower value-added schools, and this difference was statistically significant. Here too tracking

mattered, although the narrowest gap was in a lower value-added school (Mountainside), while the widest was at the other lower value-added school (Valley). The difference in scores across tracks was statistically significant.

Quality of feedback looks at the way the teacher's feedback expands and extends learning and understanding and encourages student participation. In secondary classrooms, this dimension acknowledges that peers may also provide feedback. Indicators include evidence of teachers providing feedback loops, prompting thought processes, scaffolding instruction, and providing information, encouragement and affirmation. In general, the two higher value-added schools had higher average quality of feedback scores than did the lower value-added schools, with Lakeside having the highest average quality of feedback score. This difference was marginally statistically significant. Although most schools had a tracking a gap, differences in the sizes of gaps were not statistically significant.

Instructional dialogue captures the purposeful use of dialogue (questioning and discussion) by teachers to facilitate students' understanding of content. The indicators for instructional dialogue include cumulative content-driven exchanges, distributed talk, and facilitation strategies. As with quality of feedback, Lakeside had the highest average instructional dialogue score, and Mountainside had the lowest. The differences between the high and lower value-added schools was not statistically significant. On average, advanced classes had higher instructional dialogue scores than non-advanced classes, and this difference was marginally statistically significant. The widest gap between tracks was at Valley.

CLASS-S also assesses Student Engagement. This dimension is not part of a larger domain. It is intended to measure the degree to which students in the class are focused and participating in learning activities. Indicators include active and sustained engagement in the lesson. The higher value-added schools had higher average student engagement scores than the lower value-added schools. The difference was marginally statistically significant. Advanced track classes were significantly associated with higher student engagement scores than lower track classes. The gap between advanced and non-advanced classes was widest at Lakeside.

Figure B-1 shows the distribution of ratings across the dimensions and Tables B-7 through B-10 display the average CLASS-S scores by track in each school.

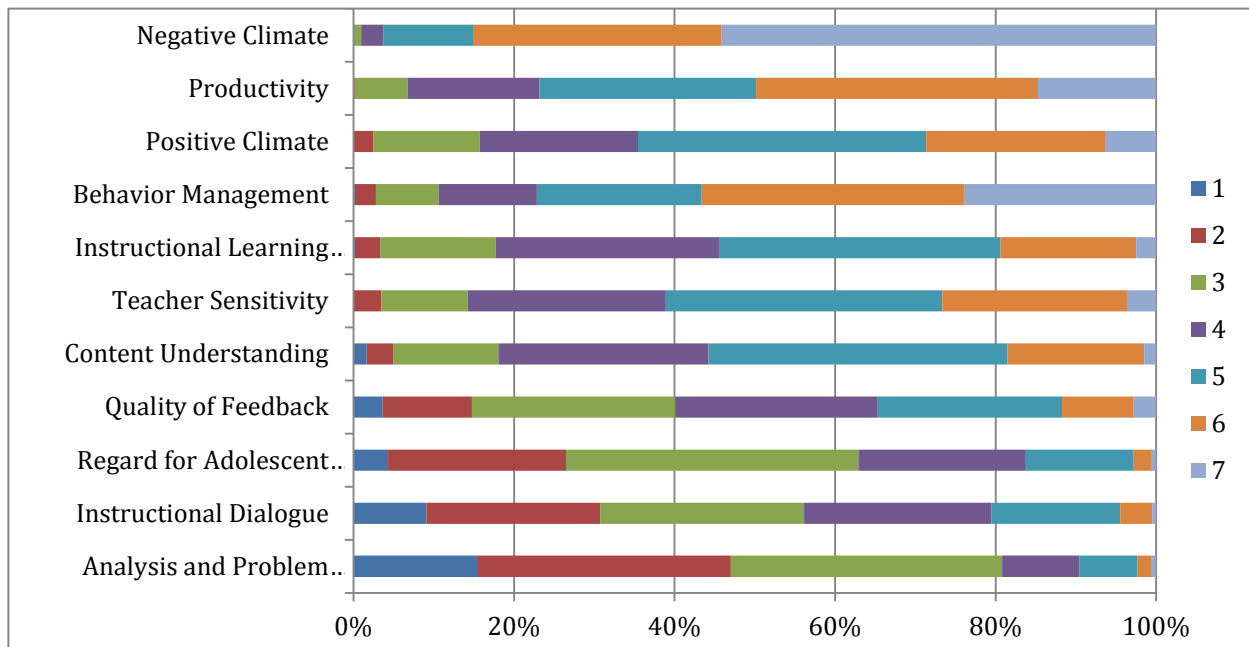


Figure B-1. Distribution of CLASS-S Scores by Dimension

Table B-8. Mean CLASS-S Scores by Track for Mountainside

Dimensions	Advanced	Non-advanced
<i>Emotional Support</i>		
Positive Climate	4.62	4.24
Negative Climate	6.35	6.16
Teacher Sensitivity	4.54	4.20
Regard for Adolescent Perspectives	2.87	2.93
<i>Organizational Support</i>		
Behavior Management	5.19	4.94
Productivity	5.10	5.06
Instructional Learning Formats	4.42	4.26
<i>Instructional Support</i>		
Content Understanding	4.54	4.46
Analysis and Problem Solving	2.40	2.43
Quality of Feedback	3.92	3.80
Instructional Dialogue	3.08	3.25
<i>Student Engagement**</i>	4.69	4.17

Note: The difference between advanced and non-advanced courses is statistically significant on measures as indicated by * for $p < .05$, ** for $p < .01$, and *** for $p < .001$.

Table B-7. Mean CLASS-S Scores by Track for Valley

Dimensions	Advanced	Non-advanced
<i>Emotional Support</i>		
Positive Climate*	5.14	4.79
Negative Climate***	6.51	5.99
Teacher Sensitivity	4.86	4.60
Regard for Adolescent Perspectives***	3.62	3.03
<i>Organizational Support</i>		
Behavior Management ***	5.75	5.00
Productivity**	5.48	4.98
Instructional Learning Formats**	4.72	4.24
<i>Instructional Support</i>		
Content Understanding***	4.83	4.14
Analysis and Problem Solving***	3.07	2.34
Quality of Feedback	3.97	3.63
Instructional Dialogue***	3.79	2.95
<i>Student Engagement***</i>	4.99	4.38

Note: The difference between advanced and non-advanced courses is statistically significant on measures as indicated by * for $p < .05$, ** for $p < .01$, and *** for $p < .001$.

Table B-9. Mean CLASS-S Scores by Track for Riverview

Dimensions	Advanced	Non-advanced
<i>Emotional Support</i>		
Positive Climate***	5.21	4.53
Negative Climate**	6.78	6.39
Teacher Sensitivity	5.04	4.84
Regard for Adolescent Perspectives**	3.65	3.08
<i>Organizational Support</i>		
Behavior Management***	5.94	5.12
Productivity	5.68	5.37
Instructional Learning Formats	4.87	4.67
<i>Instructional Support</i>		
Content Understanding	4.78	4.52
Analysis and Problem Solving	2.91	2.59
Quality of Feedback	4.04	3.57
Instructional Dialogue	3.37	3.00
<i>Student Engagement**</i>	5.14	4.49

Note: The difference between advanced and non-advanced courses is statistically significant on measures as indicated by * for $p < .05$, ** for $p < .01$, and *** for $p < .001$.

Table B-10. Mean CLASS-S Scores by Track for Lakeside

Dimensions	Advanced	Non-advanced
<i>Emotional Support</i>		
Positive Climate*	5.14	4.70
Negative Climate	6.61	6.44
Teacher Sensitivity	5.03	4.89
Regard for Adolescent Perspectives	3.50	3.47
<i>Organizational Support</i>		
Behavior Management ***	6.28	5.48
Productivity***	5.91	5.41
Instructional Learning Formats***	5.01	4.48
<i>Instructional Support</i>		
Content Understanding	4.72	4.47
Analysis and Problem Solving**	3.31	2.71
Quality of Feedback	4.24	4.29
Instructional Dialogue	3.54	3.61
<i>Student Engagement***</i>	5.26	4.35

Note: The difference between advanced and non-advanced courses is statistically significant on measures as indicated by * for $p < .05$, ** for $p < .01$, and *** for $p < .001$.

Appendix C: Fort Worth Student Shadowing Report

Data Collection and Analysis

In Wave 3 of data collection (late April to early May 2012), we shadowed 10th-grade students as they went about their normal daily activities. The goal was to understand how students experienced the school. Every five minutes, the researcher recorded data about where the student was, what the student was expected to be doing, the student's level of engagement, and with whom the student was interacting. There was also space for additional notes about that five-minute segment. Table C-1 shows the number of students and total observational segments per school. Some observational segments were excluded from analysis. For example, observations were excluded when a Lakeside student missed three class periods due to a dentist appointment since that time segment revealed no information about typical student experiences at school. Some students were observed during lunch, homeroom classes, and/or tutorial periods, although access during these periods varied within and among schools. Because these parts of the day were not uniformly observed, they were excluded from the analysis. Finally, observations that occurred during the transition between classes were also excluded since this analysis is intended to focus on activities during class.

Table C-1. Number of Students and Five Minute Observational Segments for Student Shadowing

	LVA Schools		HVA Schools		Combined
	Mountainside	Valley	Lakeside	Riverview	
Number of students	10	9	8	10	37
Total observation segments	737	678	602	777	2794
Excluded segments					
Dentist	0	0	35	0	35
Transition	50	24	45	55	174
Homeroom/Tutorial/Lunch	12	24	43	70	149
Number observation segments in all-subject analysis	675	630	479	652	2436
Number observation segments in core subject analysis	387	301	316	436	1440

The shadowing log contained the following information for each observational segment: the class period, clock time, subject area, academic track, location, the teacher's expectation of the student (what the student was supposed to be doing), the academic nature of that task (i.e., related to content or not), nature of student engagement in that task (active engagement, passive engagement, not engaged), what off-task behavior the student showed, and who the student was interacting with. The teacher's expectation of the student included many options for the researcher to choose (and another category). This analysis

combines some seldom-used categories. The type of activity in which teachers expected students to engage included: whole class discussion, direct instruction, pair or group work, individual work, taking a test or quiz, transitioning between activities, other academic activities (such as watching or giving a presentation, general studying, watching a film or video, or academically-oriented talk with the teacher), non-academic activities (such as socially-oriented talk with the teacher, handing out report cards, saying the pledge, school announcements), other (for non-core subjects, this included doing ROTC drills and playing sports in gym class), and nothing (i.e., there was nothing the student was supposed to be doing at that moment). In addition to noting the type of activity, observers also assessed the nature of student engagement in this activity according to three categories: not engaged, passively engaged, and actively engaged. Active student engagement included asking questions, responding to questions, volunteering information, sharing ideas, or manipulating materials. Students who were actively engaged were on task and focused on their class-related goals. Passive engagement included behaviors such as listening but not responding to questions, not asking questions, and being involved but appearing disinterested in the assigned task. Students were considered not engaged if they were unresponsive, disinterested, distracted, or involved in off-task behaviors.

Chi-square tests were used to examine differences between schools first, and then between the higher and lower value-added schools (combining the two schools of each type). There were three main analyses to explore differences between schools. First, observation segments in all courses were considered and are presented below. Second, only observations in the four core academic courses (English, math, science, and social studies) were considered. These findings were reported in the body of the report. Third, differences between tracks within schools were explored. For the track differences, only core academic subjects were considered, primarily because a track was not indicated for many non-core classes. This analysis used two track groupings: advanced (e.g., AP, pre-AP, honors), and non-advanced (which included missing track information). Inclusion, sheltered language, and remedial classes were considered together with on-level classes in the non-advanced category because there were too few observations in to consider these tracks separately. Note that students may have been observed in both advanced and non-advanced classes. For example, a student may have been enrolled in a pre-AP English class but a regular level mathematics class.

Results for All Subjects

Table C-2 presents the results for the shadowing analyses for all subjects, including electives. Across all schools, students were observed about 95% of the time to have an expected task on which they should be working. Student engagement varied by school, with students in Valley observed more often to be actively engaged in the activity and students in Lakeside observed most often to be not engaged.

Across all the schools, students were most likely to be expected to engage in individual work (25%), followed by listening to direct instruction (18%). There were differences between schools in the activities in which teachers were expecting students to be engaged during the shadowing observations. Students in Mountainside were observed more often in activities that involved whole class discussion and less often in activities that involved direct instruction. Students in the other lower value-added, Valley, were more likely to be observed in interactive or student-led activities or ones that were hard to classify, and less likely to be expected to engage a transitional or non-academic activity. Students in Riverview were less

likely to be assigned individual work.

Students across the schools were most likely to be observed interacting with no one (47%), followed by interacting with at least one student (25%). Students in Lakeside and Valley were even more likely than their peers in other schools to be observed interacting with no one during class time. Students in Riverview were more likely to be observed interacting with just their teacher.

Table C-2-Shadowing Results for All Subjects

	LVA Schools		HVA Schools		
	Mountainside	Valley	Lakeside	Riverview	Combined
Engagement					
Actively engaged	27.7%	35.3%***	25.5%**	24.9%**	28.5
Passively engaged	53.5	49.8***	50.9**	59.5**	53.7
Not engaged	18.8	14.9***	23.6**	15.7**	17.8
Type of Expected Activity					
Whole class discussion	18.1***	6.5***	7.9*	9.7	10.8
Direct instruction	11.9***	19.5	16.7	23.0***	17.8
Group/pair work	13.6	15.9	14.4	15.3	14.8
Individual work	28.4*	25.1	28.6*	19.0***	25.1
Test/Other academic	13.2	12.9	14.8	17.6*	14.6
Transition/Non-academic/No task	11.6	7.6**	14.6***	9.2	10.5
Other/unclear	3.3***	12.5***	2.9***	6.1	6.4
With whom interacting					
Teacher	12.3	8.3***	8.3***	24.5***	13.8
Student(s)	27.4*	24.4	21.5	23.9	24.6
Teacher and student(s)	10.1*	7.6	6.1	7.4	7.9
No one	40.2***	51.6**	56.2***	41.1**	46.5
Other/unclear	10.1***	8.1	7.9	3.1***	7.3

*School estimate has a statistically significant difference from all other schools combined at $p < .05$

**School estimate has a statistically significant difference from all other schools combined at $p < .01$

***School estimate has a statistically significant difference from all other schools combined at $p < .001$

Note: These figures refer to percent of five-minute observational segments. For example, in 28.5% of observational segments for all schools combined, the student was observed to be actively engaged.

Track Differences Within Schools

Table C-3 compares shadowing observations between advanced and non-advanced courses within the same school. There are no statistically significant differences between tracks in whether students had an expected task or whether the task was academic in nature in any of the schools. Interestingly, there were no differences in student engagement across tracks in the two lower value-added schools, although there

were differences in the higher value-added tracks. In Lakeside, students in non-advanced classes were more likely to be actively engaged than their peers in advanced classes. Conversely, students in non-advanced classes in Riverview were more likely to be not engaged while students in advanced classes were more likely to be passively engaged.

Mountainside did not have any statistically significant differences between tracks in the types of activities teachers expected of students. There were no differences between tracks in any of the schools on whether students were observed doing group or pair work or doing a non-academic or transitional activity. Students in both higher value-added schools were more likely to be expected to listen to direct instruction when in advanced classes compared to non-advanced classes. There were other differences between tracks in Lakeside, Riverview, and Valley, although there was not a consistent pattern among the schools or among the higher value-added schools.

There also were no statistically significant differences between tracks on the question of which students were observed interacting with, with the exception of students in non-advanced classes interacting with people who are hard to classify. A number of differences emerged between tracks in Lakeside, Riverview, and Valley, although there was neither a consistent pattern among the four case study schools nor among the higher value-added schools.

Table C-3: Student shadowing data by track and school, in the four core subjects only

	Mountainside		Valley		Lakeside		Riverview	
	Advanced	Non-advanced	Advanced	Non-advanced	Advanced	Non-advanced	Advanced	Non-advanced
Engagement								
Actively engaged	22.8%	23.3%	35.6%	27.6%	10.6%**	24.7%**	20.7%	16.6%
Passively engaged	61.6	55.2	52.9	55.7	60.6	53.2	69.6*	58.7*
Not engaged	15.5	21.5	11.5	16.8	28.9	22.0	9.8***	24.7***
Type of Expected Activity								
Whole class discussion	22.4%	16.4%	26.4%***	3.3%***	2.6%**	13.4%**	18.7%***	6.4%***
Direct instruction	13.3	17.0	9.9*	19.5*	37.4***	14.9***	39.0***	20.1***
Group/pair work	18.1	11.9	20.9**	19.1**	17.4	10.0	13.9	20.9
Individual work	30.0	26.4	12.1***	32.4***	13.0***	39.3***	11.2	17.3
Test/Other academic	10.5	15.8	6.6*	16.2*	18.3***	5.5***	12.3**	22.9**
Transition/Non-academic/No task	5.7	7.9	7.7	7.1	11.3	14.9	4.8*	11.7*
Other/unclear	0.0	1.7	4.4	2.4	0.0	1.0	0.0	0.8
With whom interacting								
Teacher	15.2%	10.7%	14.3%	11.0%	4.4%*	12.9%*	42.8%***	15.7%***
Student(s)	29.1	23.2	30.8	21.4	26.1***	11.4***	15.5***	29.3***
Teacher and student(s)	10.5	10.7	11.0*	3.8*	4.4	4.5	10.2**	3.2**
No one	45.2	48.0	42.9**	59.1**	62.6	62.7	26.7	49.8
Other/unclear	0.0***	7.3***	1.1	4.8	2.6*	8.5*	4.8***	2.0***
N	210	177	91	210	115	201	187	249

*School has a statistically significant difference between tracks at $p < .05$

** School has a statistically significant difference between tracks combined at $p < .01$

*** School has a statistically significant difference between tracks at $p < .001$

Appendix D: Student Survey Data

Data Description

We collaborated with the district to obtain student survey data. Specifically, we coordinated the survey items we identified as important to this study (guided by our research questions and framework of essential components). Most of these survey items were incorporated into the district-administered survey to each stakeholder. The surveys were administered across all schools in the district, not just in the four case study high schools that were the focus of this study.

The student survey was administered to students in grades 9, 10, and 11 in November 2011. Note that while 12th-grade students were not intended to be included in this student survey (the district has a separate survey for 12th-graders), some 12th-grade students did complete the survey. Two of the case study schools had relatively high percentages of 12th-graders completing the survey. A total of 10,425 students in grades 9 to 11 completed surveys, representing approximately 70% of enrolled students. Response rates for students in those grades in the four case study schools ranged from 72% to 91%. Demographic differences between survey respondents and the total enrolled population across the high schools were slight, with females and Hispanics being slightly overrepresented in the survey sample relative to total enrollment. See Table D-1 for demographic characteristics of the student survey sample.

We conducted a missing data analysis to investigate patterns of skipping items. Across all items, the amount of skipping per item ranged from 2% to 12% of the respondents. Several patterns were evident in the missing data analysis. Items at the end of the survey were more likely to be skipped than items at the beginning. Male students, black and Asian students, economically disadvantaged students, and English language learners were more likely to skip items. White students were less likely to skip items. Though fewer 11th-graders participated in the survey, those who did were less likely to skip items than 9th- and 10th-graders. Six hundred ninety students skipped half or more of the survey items and were dropped from further analyses, leaving 10,137 students. In addition, 1,059 students exhibited questionable response sets, i.e., they responded with the same answer to all items in a block and at least one of the items in the block was negatively worded. These students were also dropped from the analytic dataset. After excluding students who skipped over half the items and who exhibited questionable response sets, we imputed a complete dataset using multiple imputation. All analyses presented below were conducted using this imputed dataset (n=9,078). This represents about 60% of all 9th- to 11th-graders in the district.

Table D-1: Descriptive Statistics of Demographic Variables

	Full dataset		Reduced dataset		Population	
	N	Percent of pop.	N	Percent of pop.	N	Percent of pop.
Total students	10,827	59.3	9,078	49.7	18,266	
Number of schools	13		13		13	
Gender						
Female	5,440	50.3	4,781	52.7	9,077	49.7
Male	5,371	49.7	4,287	47.3	9,189	50.3
Missing	16	0.1	10	0.1		
Race/ethnicity						
Hispanic	6,675	61.6	5,730	63.2	10,859	59.4
African American	2,253	20.8	1,701	18.8	4,172	22.8
White	1,483	13.7	1,284	14.2	2,556	14.0
Other	418	3.9	353	3.9	679	3.7
Missing	16	0.1	10	0.1		
Grade						
9	3,996	37.0	3,378	37.3	5,772	31.6
10	3,307	30.6	2,779	30.6	4,691	25.7
11	3,122	28.9	2,598	28.7	4,328	23.7
12	385	3.6	312	3.4	3,517	19.3
Missing	17	0.2	11	0.1		
Economically disadvantaged						
Yes	7,698	71.1	6,420	70.7	11,158	60.9
Missing	3,129	28.9	2,658	29.3		
Limited English Proficient						
Yes/Current	721	6.7	558	6.1	1,123	6.1
First year out	172	1.6	151	1.7		
Second year out	220	2.0	192	2.1		
Missing	9,714	89.7	8,177	90.1		

Note: Population numbers come from 2011-12, with the exception of economically disadvantaged status, which comes from 2010-11.

Scale Descriptions

The student survey was designed with several *a priori* scales, many of them used in previous research projects. Factor analyses on principal components were performed separately on each of the proposed survey scales. The student survey included scales measuring the following intended constructs: academic engagement, personalization, parent press toward academic achievement, peer support for academic achievement, student sense of belonging, student study habits, how well the school prepared students for successful futures, school climate, disaster preparation, the degree to which students felt expectations for academic press, the degree to which students felt challenged academically, the degree to which students showed responsibility through class participation, the degree to which the school culture fostered responsible behavior, school safety, bullying, and parent connections. Tables D-2 through D-6 present information on each scale, including the items

that make up the scale.

Table D-2: Reliability of Scales for Rigorous and Aligned Curriculum

Scales	Factor loadings	Scale reliability
Academic Press: Expectations		0.67
My classes really make me think.	0.609	
My teachers expect me to do my best all the time.	0.844	
My teachers expect everyone to work hard.	0.833	
Academic Press: Challenge		0.73
In class, how often do you find the work difficult?	0.746	
In class, how often does the teacher ask difficult questions on tests?	0.780	
In class, how often does the teacher ask difficult questions?	0.759	
In class, how often do you have to work hard to do well?	0.610	
In class, how often are you challenged?	0.567	
School-Wide Future Orientation		0.80
High school is seen as preparation for the future.	0.591	
All students are encouraged to go to college.	0.608	
Teachers work hard to make sure all students are learning.	0.775	
My teachers make sure that all students are planning for life after graduation.	0.747	
My teachers pay attention to all students, not just the top students.	0.742	
My teachers work hard to make sure that all students stay in school.	0.793	

Table D-3: Reliability of Scales for Personalized Learning Connections

Scales	Factor loadings	Scale reliability
Personalization		0.88
How many adults in your school are willing to give extra help with your homework if needed?	0.773	
How many adults in your school are willing to help you solve personal problems?	0.799	
How many adults in your school really care about how you are doing in school?	0.845	
How many adults in your school help you think about what you need to do to prepare for college?	0.852	
How many adults in your school have helped you think about whether you are meeting the requirements for graduation?	0.819	
Student Sense of Belonging		0.71
People at this school are like family to me	0.683	
I fit in with the students at this school	0.643	
People at this school care if I am absent	0.665	
There are people at this school that I can talk to about personal matters	0.692	
I participate in a lot of activities at this school	0.509	
There are people at this school that will help me if I need it	0.661	

Table D-4: Reliability of Scales for Culture of Learning and Professional Behavior-Academic Culture

Scales	Factor loadings	Scale reliability
Academic Engagement		0.73
I am usually bored in class	0.690	
Sometimes I get so interested in my work that I don't want to stop	0.674	
The topics we are studying in this school are interesting	0.750	
I usually look forward to my classes	0.767	
I work hard to do my best in my classes	0.533	
I often count the minutes until class ends	0.526	
Peer Support for Academic Achievement		0.80
My friends try hard in school	0.669	
My friends and I talk about what we did in class	0.650	
My friends and I help each other prepare for tests	0.727	
My friends think it is important to do well in school	0.751	
My friends and I help each other with homework assignments	0.746	
My friends think it is important to attend every class	0.721	
Student Study Habits		0.72
I always study for tests	0.749	
I set aside time to do my homework and study	0.816	
I try to do well on my schoolwork even if it isn't interesting to me	0.666	
If I need to study, I don't go out with my friends	0.745	
Student Responsibility: Participation		0.82
How many students in your class attend class regularly?	0.658	
How many students in your class come to class prepared with appropriate supplies and books?	0.793	
How many students in your class regularly pay attention in class?	0.816	
How many students in your class actively participate in class activities?	0.730	
How many students in your class always turn in their homework?	0.758	
School Climate		0.74
My classes prepare me to be successful in college	0.630	
My teachers encourage me to share my ideas and opinions	0.633	
I feel other students at my school respect me	0.449	
The principal at our school is a good leader	0.549	
I receive recognition for doing good work	0.633	
My teachers treat me with respect	0.757	
My teachers treat other students with respect	0.751	

Table D-5: Reliability of Scales for Culture of Learning and Professional Behavior-School Safety

Scales	Factor loadings	Scale reliability
Student Responsibility: School Culture		0.73
How many students in your class feel OK to make racist or sexist remarks?	0.905	
How many students in your class feel OK to cheat?	0.853	
School Safety		0.85
How safe do you feel outside around the school?	0.820	
How safe do you feel traveling between home and school?	0.755	
How safe do you feel in the hallways and bathrooms of the school?	0.853	
How safe do you feel in your classes?	0.811	
Bullying/ School Safety		0.77
I know of at least one student who has been bullied electronically	0.803	
I know of at least one person at my school who has been bullied physically	0.844	
I know of at least one person at my school who has been bullied verbally	0.851	

Table D-6: Reliability of Scales for Connections to External Communities

Scales	Factor loadings	Scale reliability
Parent Press toward Academic Achievement		0.84
To what extent do your parents talk to you about how you are doing in your classes?	0.854	
To what extent do your parents talk to you about what you are studying in class?	0.892	
To what extent do your parents talk to you about your homework assignments?	0.876	
Parent Connections: Involvement		0.80
To what extent are your parents involved in working with you on homework or other school projects?	0.595	
To what extent are your parents involved in volunteering at your school?	0.713	
To what extent are your parents involved in helping you decide what classes to take?	0.565	
To what extent are your parents involved in attending school activities or meetings?	0.746	
My parents know most of my teachers	0.694	
To what extent are your parents involved in communicating with your teachers?	0.742	
Parent Connections: Future Orientation		0.83
To what extent are your parents involved in encouraging you in school?	0.782	
To what extent do your parents talk to you about college?	0.873	
To what extent do your parents talk to you about future career plans?	0.862	

Results

The results on the above scales can be found in the body of the report in the respective sections that detail findings for each essential component. In addition to the above scales, the survey asked students about their participation in various school programs, their educational aspirations, and the school personnel with whom they discussed various issues. Some of these findings are included in the detailed findings on each essential component, but we present the full results in Tables D-7 through D-16. The most common school programs in which students across the case study schools participated were tutoring, sports, and activities or clubs. Students in Lakeside were most likely to attend tutoring, which is not surprising given the school's emphasis on Learning Time. Students in Riverview were more likely to participate in community service while those in Mountainside were more likely to participate in credit recovery programs. Students in Valley were least likely to attend preparation for the SAT, ACT, or PSAT. These findings are consistent with what emerged in the fieldwork. Students in Lakeside also appeared less likely to participate in sports. Students in Mountainside and Riverview were more likely to participate in school leadership, perhaps indicating a stronger presence of a student government structure in those schools.

Table D-7. Student Participation in School Programs

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Activities or Clubs	30*	23***	26***	34***	45%
Tutoring	58***	43*	75***	26***	44
Sports	42*	41	35***	41*	40
PSAT, SAT, ACT Prep	28***	12***	37***	34***	25
Community Service	18**	10**	13**	24**	16
School Leadership	12***	5***	7**	13***	8
Other Test Prep	9***	5***	11***	7*	7
Credit Recovery	12***	8**	8	5***	7
ELL Program	9***	6***	7***	2***	4
Internship	2	1	2*	1**	1

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's mean rating compared to the mean from the other schools combined.

Riverview had students with greater educational aspirations than the other three case study schools. This is consistent with the fieldwork as Riverview had a vision as a college preparatory school. Almost three-quarters of students at the school planned to complete a four-year degree or higher. In the other three schools, that response ranged from 55% to 68%.

Table D-8. Educational Aspirations by School

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Not graduate from HS	0.3% **	0.8% **	0.9% ***	0.5% ***	0.9%
Graduate from HS	14**	19	15	11***	13
Pursue a cert. or license	5	8***	9	5***	7
Complete 2-yr college degree	11**	16***	17***	8***	14
Complete 4-yr college degree	46	38***	40***	42***	39
Complete advanced degree	24***	18***	19*	33***	23

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students were most likely to talk to their counselor about what courses to take, with about two-thirds of students doing so. There were not large differences between schools in the adults students talked to about what courses to take.

Table D-9. Percentage of Students by School Who Talked to Various Adults about What Courses to Take

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	7% ***	3%	3%	3% ***	6%
Counselor	63***	65***	68	69**	68
Teacher	28	30	29	33***	29
Coach	10***	9***	6**	8	7
Other	14***	10*	14***	12	12
No one	13	16**	13*	15*	14

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students talked to fewer school personnel about what courses are required for college. There were differences in the role of school personnel in helping students know college requirements. In Mountainside, only 18% of students did not talk to anyone about course requirements for college, indicating that 82% of students did discuss the topic with someone at the school. In Riverview, however, 36% of students did not talk to anyone in the school about what courses to take for college. This may have been due to the strong role Riverside parents took in helping students navigate the path to college.

Table D-10: Percentage of Students by School Who Talked to Various Adults about What Courses You Need for College

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	5% ***	2% ***	3% *	5% ***	4%
Counselor	53***	41***	49***	41***	44
Teacher	31***	29**	31***	27*	45
Coach	8***	6***	3*	3	3
Other	14***	10***	15***	11***	11
No one	18***	32	24***	36***	30

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students were most likely to talk to teachers, followed by counselors, about how to prepare for college admissions tests such as the PSAT, SAT, and ACT. Students in Valley were least likely to talk to anyone in the school about these college admissions tests, consistent with the finding above that they were the least likely to participate in programs to prepare for them.

Table D-11. Percentage of Students by School Who Talked to Various Adults about Preparing for the PSAT, SAT, or ACT

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	5% *	2% ***	4%	8% ***	4%
Counselor	36***	21	31***	16***	20
Teacher	45**	41***	50**	59***	48
Coach	4***	3***	1***	1	2
Other	13***	8***	15***	9	9
No one	19***	38***	19***	25***	31

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students were most likely to talk to their teachers about how to prepare for standardized tests, with about 55-60% of students doing so. There were few large differences between schools.

Table D-12. Percentage of Students by School Who Talked to Various Adults about Preparing for other Standardized Tests

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	6%***	1%***	4%	5%***	3%
Counselor	21***	13*	18***	10***	13%
Teacher	55*	56	58	60***	57
Coach	4***	2	2	1**	2
Other	10***	10***	11***	8	8
No one	20***	27	21***	26	26

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students were most likely to talk first to a counselor and then to a teacher about filling out college or financial aid applications. However, one-third to over half of the students in our case study schools did not talk to anyone in school about things. It is worth noting that the data are primarily from students in grades 9 to 11 who may not have been actively completing these applications yet.

Table D-13. Percentage of Students by School Who Talked to Various Adults about Filling Out College or Financial Aid Applications

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	4%***	2%	2%	2%**	2
Counselor	34***	21***	34***	19***	24
Teacher	20	18	21**	15***	19
Coach	6***	3*	2*	3	3
Other	15**	12	19***	13	12
No one	33***	51**	37***	57***	49

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Most students did not talk to any adult at school about how to get a job. The most common adult they did discuss this with was a teacher. Students in Mountainside were more likely than students in other schools to talk to a coach.

Table D-14. Percentage of Students by School Who Talked to Various Adults about How to Get a Job

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	3%***	1%**	2%	2%	2%
Counselor	18***	10	12***	7***	10
Teacher	25	24	29***	16***	24
Coach	8***	4	4	3***	4
Other	22*	21	22*	20	21
No one	36***	47*	43***	57***	48

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Students were most likely to talk to a teacher, followed by their counselor, about what they wanted to do after graduation. Students in Mountainside were more likely than students in other schools to talk to a coach.

Table D-15. Percentage of Students by School Who Talked to Various Adults about What You Want to Do After You Graduate

	LVA Schools		HVA Schools		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	9%***	3%***	4%***	3%***	5%
Counselor	37***	24***	33***	22***	29
Teacher	39	38	41***	33***	38
Coach	13***	9***	7	8	8
Other	26***	20***	26***	24***	22
No one	17***	29***	21***	33***	26

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Most students did not talk to any adult at school about personal or family issues or problems. The most common adult they did talk to about getting a job was a teacher or counselor. Students in Mountainside were more likely than students in other schools to talk to a coach about personal issues.

Table D-16. Percentage of Students by School Who Talked to Various Adults about Personal or Family Issues or Problems

	LVA		HVA		District mean
	Mountainside	Valley	Lakeside	Riverview	
Administrator	4%***	1%***	1%***	2%***	2%
Counselor	20***	13***	18***	12***	15
Teacher	22***	18	21***	12***	17
Coach	11***	7	5***	6	6
Other	15**	15***	21***	17	17
No one	41***	55*	47***	60***	53

* for $p < .05$, ** for $p < .01$, and *** for $p < .001$. Statistical significance was calculated based on mean comparisons tests between each case study school's value compared to the average from the district's other 12 schools.

Appendix E: Teacher Survey Data

Data Description

Similar to the student survey, we also collaborated with the district to obtain teacher survey data. Specifically, we coordinated the survey items we identified as important to this study (guided by our research questions and framework of essential components). Many of these survey items were incorporated into the district-administered survey to each stakeholder. The surveys were administered across all schools in the district, not just in the four case study high schools that were the focus of this study.

The teacher survey was administered through an online portal to all teachers in December 2011 to January 2012. The overall response rate was 44% across all high schools, for a total of 577 respondents. Response rates within case study schools varied considerably, ranging from 30% to over 60% of teachers. See Table E-1 for demographic characteristics of the teacher survey sample.

We attempted to conduct a missing data analysis to investigate patterns of item completion. The data provided by the district had no missing data. All items had an “N/A” or “I don’t know” option and it appeared that the online survey defaulted responses to these options, making it impossible to distinguish between a skipped item and a true “N/A” or “I don’t know” response. To conduct a missing data analysis, we treated all “N/A” and “I don’t know” responses as missing. Across all items, the amount of “missingness” per item ranged from less than 1% of the respondents to 26%. There was not an identifiable pattern in the items that were left as “N/A” or “I don’t know”. On average, teachers skipped about 5% of the items (range 0-66%). Only one teacher skipped more than 50% of the items; this teacher was dropped. In addition, 20 teachers exhibited questionable response sets, i.e., they responded with the same answer to all items in a block. These teachers were also dropped from the analytic dataset. All analyses presented below were conducted using this reduced dataset (n=556).

Table E-1: Descriptive Statistics of Demographic Variables on Teacher Survey

	Full Dataset		Reduced Dataset	
	N	% of Pop.	N	% of Pop.
Total	577	44.0	556	42.4
Type of Classes	N	% of Teachers	N	% of Teachers
Advanced Placement /Pre-AP/International Baccalaureate	165	28.6	161	29.0
Gifted and Talented /Honors	148	25.6	145	26.1
Regular/Standard	468	81.1	451	81.1
Special Education	80	13.9	79	14.2
Remedial	29	5.0	29	5.2
Dual-Language/ESL/ELL	55	9.5	55	9.9
Academic or Leadership Positions	N	% of Teachers	N	% of Teachers
Department Lead/Chair	63	10.9	62	11.2
Grade Level Head/Chair	13	2.3	13	2.3
Content Coach/Lead Content Teacher	44	7.6	41	7.3
Serve on a school-wide committee or task force	139	24.1	137	24.6
Serve on a district-wide committee or task force	29	5.0	29	5.2
None of above	365	63.3	349	62.8

Note: The total population of teachers in the district’s high schools is 1,310 teachers. Administrative data are not available for the type of classes teachers taught and academic or leadership positions held. Teachers could select more than one response option for the type of classes they taught and academic or leadership positions.

Scale Descriptions

The teacher survey was designed with several *a priori* scales, many of them used in previous research projects. Coordinating with the district meant that not all items making up the scale were included on the survey and additional items were added. Principal components factor analyses were performed separately on each of the proposed survey scales and on the items added by the district. The teacher survey included scales measuring the following intended constructs: bullying, data use, efficacy, instructional program coherence, personalization-social, school leader instructional support, teacher-principal trust, teacher-teacher trust, support for quality instruction, systemic performance accountability, supportive and shared leadership, expectations for postsecondary education, personalization-school action, teacher accountability, teacher outreach to parents, teacher-parent trust, and time to collaborate. Tables E-2 through E-10 present information on each scale, including the items that make up the scale. Note that in the body of the report, we do not report findings for any scale that had a reliability below 0.6 (i.e., Parent Outreach-Teacher, Teacher-Parent Trust, and Career Readiness).

Table E-2: Reliability of Scales for Learning-centered Leadership

	Factor loadings	Scale reliability
Instructional Program Coherence		0.68
We have so many different programs in this school that I can't keep track of them all.	-.337	
You can see real continuity from one program to another in this school.	.809	
Curriculum, instruction, and learning materials are well coordinated across the different grade levels at this school.	.880	
There is consistency in curriculum, instruction, and learning materials among teachers in the same grade level at this school.	.809	
Teacher-Principal Trust		0.90
My principal is very visible on campus.	.827	
Overall, I have confidence in the administrators at my school.	.891	
My principal appreciates diversity and respects the cultural backgrounds of the staff.	.843	
I can reach my principal when I need to.	.848	
My school administrators care about me as a person.	.788	
Principal Effectiveness at Supporting Quality Instruction		0.92
Allocates instructional resources to maximize the quality of instruction.	.835	
Implements procedures to protect instructional time.	.818	
Uses the most effective teachers to instruct students at risk of failure.	.810	
Discusses instructional practices during faculty meetings.	.785	
Monitors the quality of instruction for students at risk of failure.	.853	
Utilizes technology to improve teaching and learning.	.777	
My school administrators encourage my professional growth and development.	.722	
My school administrators receive input from staff concerning planning and revisions to student scheduling.	.648	
My school administrators provide staff with sufficient advanced notice of upcoming meetings and activities.	.676	

Table E-3: Reliability of Scales for Rigorous and Aligned Curriculum

	Factor loadings	Scale reliability
Postsecondary Expectations		0.79
I expect most students in this school to either go to college or attend postsecondary training.	.901	
Most of the students in this school are planning to either go to college or attend postsecondary training.	.904	
Career Readiness		0.55
I help students plan for college/career-readiness outside of class time.	.818	
I feel that it is part of my job to prepare students to succeed in college.	.841	

Table E-4: Reliability of Scales for Personalized Learning Connections

	Factor loadings	Scale reliability
Personalization-Extra Help		0.66
Extra help from you	.641	
Extra help from other staff members during regular school hours	.578	
Extra help from school staff outside of regular school hours	.597	
I help my students with school work outside of class time.	.604	
Mostly when I contact parents, it's about problems or trouble.	-.539	
Personalization-Structural Support		0.76
Parent-teacher meetings to discuss what the school and the student's parents/guardians can do to help	.745	
Help in choosing their classes	.826	
Referrals to community organizations for assistance	.798	
Personalization-Social		0.77
Know their academic aspirations	.732	
Know their academic background prior to this year	.699	
Know their home life	.820	
Know who their friends are	.778	
Spend time with them through extra-curricular activities	.615	

Table E-5: Reliability of Scales for Culture of Learning and Professional Behavior-Academic Culture

	Factor loadings	Scale reliability
Efficacy		0.68
If a student did not remember information I gave in a previous lesson, I would know how to increase their retention in the next lesson.	.772	
I know some techniques to redirect disruptive students quickly.	.822	
I can get through to even the most difficult or unmotivated students.	.763	
Teacher-Teacher Trust		0.63
The teachers on my campus respect my ability to provide quality instruction.	.814	
Other teachers on my campus respect diverse professional opinions and practices at my school.	.829	
This school is a safe place to work.	.598	
I have at least one colleague in whom I can confide at my campus.	.500	
Positive Faculty Culture		0.83
My school administrators respect diverse professional opinions at my school.	.813	
My school administrators use data to identify areas in need of improvement.	.635	
My school administrators receive input from staff concerning campus performance objectives.	.734	
I enjoy working at this school.	.724	
At my campus, I have the opportunity to do what I do best every day.	.709	
I regularly receive recognition/praise for doing good work.	.710	
The District has clearly emphasized strategies designed to eliminate the achievement gap between white and minority students.	.588	

Table E-6: Reliability of Scales for Culture of Learning and Professional Behavior-Collaboration and Feedback

	Factor loadings	Scale reliability
Frequency of Collaboration: How often have you:		0.71
Created lesson plans with other teachers	.759	
Reviewed student work with other teachers	.622	
Reviewed student data with other teachers	.670	
I have a planning period at the same time as most of the other teachers in my department/grade level.	.616	
Frequency of Peer Observation and Feedback: How often have you:		0.84
Observed other teachers while they teach	.752	
Received feedback from other teachers regarding how you teach your students	.706	
Provided feedback to other teachers based on your observations of their teaching	.796	
Co-taught with or modeled a lesson for another teacher	.709	
Worked to identify individual students' learning needs with other teachers	.572	
Collaboration Improves Instruction: To what extent have these activities contributed to improving your instruction?		0.94
Created lesson plans with other teachers	.664	
Reviewed student work with other teachers	.730	
Reviewed student data with other teachers	.709	
Observed other teachers while they teach	.769	
Received feedback from other teachers on how you teach your students	.812	
Provided feedback to other teachers based on your observations of their teaching	.780	
Co-taught with or modeled a lesson for another teacher	.635	
Worked to identify individual students' learning needs with other teachers	.767	

Table E-7: Reliability of Scales for Culture of Learning and Professional Behavior-School Safety

	Factor loadings	Scale reliability
Bullying		0.85
I know of students who have been physically bullied at my school.	.906	
I know of students who have been verbally bullied at my school.	.911	
I know of students at my school who have been bullied on the Internet.	.819	

Table E-8: Reliability of Scales for Connections to External Communities

	Factor loadings	Scale reliability
Parent Outreach-Teacher		0.43
Involving parents is my responsibility as a teacher.	.841	
I work closely with my students' parents to meet my students' needs.	.725	
Parent Outreach-School Support		0.61
My principal pushes teachers to communicate regularly with parents.	.604	
Parents are greeted warmly when they call or visit the school.	.800	
This school regularly communicates with parents about how they can help their children learn.	.825	
Teacher-Parent Trust		0.31
Most parents know how to help their children with schoolwork at home.	.817	
Parent involvement can increase my classroom effectiveness.	-.030	
I do not have the time to involve parents in very useful ways.	-.092	
Most parents give timely responses to my requests.	.817	

Table E-9: Reliability of Scales for Systemic Use of Data

	Factor loadings	Scale reliability
Data use		0.88
CBA data are used to modify/enhance instruction in my classroom.	.422	
I use multiple sources of student data (i.e., test data, interventions, attendance) to modify/enhance instruction in my classroom.	.691	
I use data to plan lessons.	.858	
I use data to set learning goals.	.865	
I use data to form small groups of students for targeted instruction.	.795	
I use data to develop recommendations for tutoring or similar interventions.	.822	
I use data to identify students' responses to interventions that they have received.	.852	
The requests I receive for data are reasonable.	.639	

Table E-10: Reliability of Scales for Systemic Performance Accountability

	Factor loadings	Scale reliability
Instructional Support from School Leader		0.92
I discussed my teaching with my principal or an assistant principal.	.789	
My principal or an assistant principal observed my teaching for at least 10 minutes.	.775	
My principal or an assistant principal provided me with feedback to improve my instruction after observing my teaching.	.871	
My principal or an assistant principal reviewed my students' work with me.	.809	
My school administrators provide me with ongoing feedback and guidance.	.793	
My school administrators have spoken with me about my progress so far this year.	.811	
My principal/assistant principal/evaluator considered my individual professional evaluation results when recommending professional development activities to me.	.856	
Teacher Accountability		0.74
My PDAS teacher evaluation provides valuable feedback that improves my teaching.	.727	
The teachers on my campus are committed to providing quality instruction for our students.	.560	
There are consequences for teachers who do not perform well.	.770	
Other teachers hold me accountable for my performance.	.728	
Teachers who don't perform well are given opportunities to improve.	.687	
Principal Effectiveness at Systematic Performance Accountability		0.88
Implements programs and practices to hold faculty accountable to reach the highest levels of performance.	.904	
Advocates that all students are accountable for achieving high levels of performance in both academic and social learning.	.886	
Challenges faculty who do not hold all students accountable for achieving.	.908	

Appendix F: District Perspectives on High School Effectiveness

Interviews conducted with central office personnel provide insight into the district as the unit of work. Despite a focus in the interviews on similarities and differences among the four schools in the study, few concrete findings emerged in this area. The clear exception to this conclusion was Riverview, which central office personnel regularly identified as an outlier, because of its relative high concentrations of higher SES students compared to the other three schools.

Interview data did provide the impression that the two higher value-added (HVA) schools were marked by some conditions that were stronger or more fully developed than in the two lower value-added (LVA) schools. To begin with, central office personnel reported stronger administration/leadership in the HVA schools, although the issue of cause and effect was never addressed directly. Some personnel also noted that strong leadership was responsible for the recent increase in the achievement at Valley, one of the LVA schools. Second, district personnel indicated that teachers in HVA schools internalized accountability for student learning to a greater extent than their peers in LVA schools. Along with this, district personnel suggested that the HVA schools had strong culture and organizational structures in place, such as tutoring at Lakeside and the culture of teacher leadership/responsibility at both Lakeside and Riverview. Additionally, central office personnel defined “academic press” in part by the percentage of students taking Advancement Placement classes. Their perspective was that HVA schools were exercising this approach with greater vigor and success than were LVA schools.

The focus of the central office interviews was on the four schools in the study, especially distinctions among them. At the same time, however, interviews provided additional insights about district office operations, especially what was valued at that level of the school system. There is little doubt that student academic success on state tests was the *sine quo non* of effectiveness for all schools. Third, there was pressure to have schools become more meaningful and relevant for students. This effort was grounded in the logic that meaningfulness would improve both the schools’ holding power and their student learning outcomes. Pathways to accomplish this goal included a focus on student-centered curriculum and student (and parent) choice in the selection of varied and distinct courses of study (e.g., Gold Seal Programs of Choice).

Endnotes.

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^v Fort Worth Independent School District (FWISD), together with Broward County Public Schools (BCPS) are the Center’s two partner districts. The Center has been involved in parallel research, design, and implementation processes in both districts.

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